PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Vol. 114, No. 4 Thursday, January 22, 1942 Price Ten Cents

Canadian Newsprint Demand Is Upwards

Increased Shipments To U. S. Largely Offsets Decline In Exports To United Kingdom — Outlook For Current Year Uncertain But Average Rate of 78.9 Per Cent of Capacity Is Expected For 1942.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 19, 1942—Due no doubt to increased newspaper circulation consequent on the war with Japan, the seasonal trend of newsprint demand was reversed in December and increased consumption brought the total Canadian production for the year to slightly above the total for last year. Throughout the year there had been considerable falling off in overseas shipments, especially to the United Kingdom and Australasia, and this had in large part been compensated for by increased demands from the United States. The outlook for 1942 is admittedly more conjectured. Trade with the Orient is likely to be negligible, at least for the time being, but taken all in all the feeling is that demand on Canadian newsprint mills will likely be around the 1941 level, when mills operated at an average ratio of 78.9 per cent of capacity, with deliveries for the 12 months averaging 79.6 per cent of capacity.

Meanwhile the extraordinary demand for all kinds of pulp, and in particular for chemical pulp, not only for paper making but for all kinds of war uses, is demanding attention, with many plans afoot for increasing production. In the past few years there has been a big jump in pulp exports, which last year reached a record value estimated at around $84,000,000. There is also an extraordinary demand for all kinds of book and writing paper, paper boards and so on, which has been accentuated by two factors, greatly lessened imports and the tremendous Government demand occasioned by all kinds of war activities.

Record Cut in Forests

According to government officials, a record quantity of timber is now being cut in the forests of Quebec. The cut, it is estimated, will total 700,000,000 cubic feet. An idea of the extent of the cut is given by a computation that when in board feet measure the lengths of the timber placed on a line would go around the globe 40 times.

An announcement made at the same time is that this cutting does not prove detrimental or destructive to the forest, because measures are being enforced to protect against any devastation. In fact, in the case of forests known to be under sixty years old, a very severe control is exercised and the cutting is reduced to a minimum. In the case of some of the oldest forests, which in some instances contain timber of 150 to 200 years old, the cutting is considered beneficial.

A shortage of labor is feared this season. Work which generally finishes now, will extend until March at least.

The cut is especially heavy in the St. Maurice district where at least 110,000,000 cubic feet is foreseen. Directly or indirectly, about 100,000 men are employed in the forests. This includes mills. Wages paid total about $34,000,000. As a result the industry is still the leading one in its contribution to the Provincial Treasury, several million dollars being realized from that source alone.

Last year, the cut made by companies totalled 447,000,000 cubic feet.

Pulp and Paper Convention

At the annual convention of the Canadian Pulp and Paper Association, to be held here next week, the Weldon Gold Medal, donated annually by A. L. Dawe, will be awarded to Carl D. Jentz, of the St. Lawrence Paper Mills Company, in recognition of various technical papers presented by Mr. Jentz at the 1941 annual meeting and on other occasions. The Howard Smith Gold Medal, donated by Harold Crabtree, will be awarded to K. D. Running, of the Anglo-Canadian Pulp and Paper Mills, for his paper "Hardwood Utilization," also read at the 1941 meeting. Separate sessions will be held by the Technical Section, under the chairmanship of W. B. Scott, and the Woodlands Section, under the chairmanship of L. A. Nix. The principal speaker at the annual luncheon of the Woodlands Section will be Lt.-Col. Howard Kennedy, former manager of the Quebec Forest Industries Association, who is temporarily in Canada following active service overseas.

(Continued on page 30)

Wisconsin Paper Group Makes Its Report

C. W. Hoeper of Badger Paper Mills Elected President and W. K. Austin of Kimberly-Clark Corp. Elected Vice-President — Industrial Safety Committee To Hold Three Meetings—Other Mill News

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 19, 1942—C. W. Hoeper, vice-president and sales manager of the Badger Paper Mills, Inc., Peshtigo, Wis., was elected president of the Wisconsin Paper Group at the annual meeting Saturday, January 10, at the Valley Inn, Neenah, Wis. He succeeds R. J. Sund of the Menasha Products division of the Marathon Paper Mills Company, who automatically remains on the board of directors for a year. W. K. Austin of the Kimberly-Clark Corporation, Neenah, was elected vice-president, and L. O. Schubart of the Neenah Paper Company, Neenah, was reelected secretary-treasurer.

G. T. Keappock of the Nicolet Paper Corporation, De Pere, Wis., was elected to the executive committee to succeed E. C. Hilfert of the Riverside Paper Corporation of Appleton, Wis., who had served for five years and was president in 1940. Others reelected to the executive committee are: A. C. Remley, Nekoosa-Edwards Papers Company, Port Edwards; E. H. Jennings, Thilmany Pulp and Paper Company, Kaukauna; A. J. Schierl, Whiting-Plover Paper Company, Stevens Point; J. D. Young, Edgewater Paper Company, Menasha; H. D. Wake, Consolidated Water Power and Paper Company, Wisconsin Rapids, and Leonard Kuehl, Flambeau Paper Company, Park Falls.

D. K. Brown, president of the Neenah Paper Company and of the Wisconsin Paper and Pulp Manufacturers' Traffic Association, addressed the meeting on the current and possible future production and traffic problems. He is at present serving on the advisory board to the Office of Production Management.

Committees Make Reports for Year

Reports were given by Mr. Schubart, Henry C. Krueger, Neenah, chairman of the traffic committee; Eugene Colvin of the Appleton Coated Paper Company, Appleton, chairman of the advertising committee, and Irwin Pearson, executive secretary, who was reelected for his ninth term.

The amount of tonnage cleared during 1941 exceeded any previous year, the reports showed. A total of 3,110 pool carloads of paper and paper products was shipped to 248 cities in 40 states and Washington, D. C. The Wisconsin Paper Group is a nonprofit organization serving 27 member mills, scheduling pool carload freight delivery service to customers.

Safety Committee to Hold Meetings

The industrial safety committee of Neenah and Menasha, Wis., will hold the first of a series of three safety meetings Tuesday evening, January 20, at the auditorium of the Neenah high school, with John Gutknecht, Chicago traffic court judge, as the speaker. Edward Page of the Kimberly-Clark Corporation, chairman of the committee, will be in charge, and Francis T. Rooney of the George Banta Publishing Company, will preside. A concert will be given by the Kimberly-Clark band. Entertainment will be furnished by "Professor" Russell E. Oakes of Waukesha, Wis., self-styled wizard and "screw ball" inventor.

Consider Farm as Pulpwood Source

Looking to the woodlot owner and the farmer as a possible source of supply for pulpwood and timber in the future, the Wisconsin committee of the American Society of Forestry met at Hotel Wausau, Wausau, Wis., January 12. Problems whose solution will aid in keeping these sources in continual production were reviewed. Material which will be assembled on this subject will be reviewed further at a meeting to be held at Appleton, Wis., in March.

Among those who took part in the deliberations were E. B. Hurst, chief forester of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., and G. C. MacLaren, chief forester of the Tomahawk Kraft Paper Company, Tomahawk, Wis.

O. T. Swan of Oshkosh, Wis., secretary-manager of the Northern Hemlock and Hardwood Manufacturers Association, said a careful study will be made of the woodlot situation in Wisconsin and Michigan to produce basic facts and statistics. Then modified legislation will be devised to aid in the preservation of growing timber for future use. The present practice of taxing these lands on the basis of from 75 to 100% of their commercial value, he declared, is an added burden on the owner, in view of the periodic devastation caused by windstorms, fire, insects and drouth.

J. M. Holderby has resigned as superintendent of the sewage disposal plant of Neenah and Menasha, Wis., to accept a position as coordinator of research with the sulphite pulp manufacturers' committee on waste disposal. The committee has its headquarters with the Institute of Paper Chemistry, Appleton, Wis.

Mr. Holderby has served the sulphite committee in an advisory capacity during the last year, but enlargement of its activities led to his appointment on a full-time basis. The committee, in cooperation with the Institute, is conducting research to find a uniform method of disposing of waste sulphite liquor in order to comply with state regulations forbidding stream pollution. All of the sulphite mills but two in the state contribute on a per-ton basis to a fund which finances the research work. Mr. Holderby expects to be released from his present position February 1.

Paper Mills to Exhibit Products

Products of various paper mills and converting plants will be included in the third annual mardi gras and union label exhibit to be held January 23 to 25 at Menasha, Wis., by the Neenah-Menasha Trades and Labor Council. On Saturday evening, an address will be made by John P. Burke, president of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. Defense stamps and bonds will be given as prizes.

PERHAPS THE FUTURE LOOKS DARK.

BUT REMEMBER that it is not dark with doubt or confusion, but dark simply because we have a great number of difficult things to do quickly. ¶When you look beyond these clouds, the future is bright. This dark hour is but an incident in the history of a great people determined at all costs to be forever free. DONALD M. NELSON IN THE AMERICAN MAGAZINE

GENERAL DYESTUFF CORPORATION

Wrapping Paper Output in Canada Grows

Paper Board Production Increased Sharply By War — Wrapping Paper Output Up 23.5 Per Cent In 1941 — Fine Paper Increase Put At 7 Per Cent — Newsprint Demand Steady — Pulp Output.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 19, 1942—With the production of paper board up about 60,000 tons in 1940 and perhaps another 50,000 tons in 1941, some idea may be gained of the accelerating demand brought about by the war. Already the production of paper board for packing munitions and other war products represents a considerable proportion of the total mill capacity and with a constantly increasing production of war goods, it is going to keep the manufacturers of paper board operating at capacity for some time to come to keep up with the demand.

Wrapping Paper Output Up 23.5 Per Cent

The same situation pertains in the wrapping paper division, where the demand for wrapping papers has been greatly stimulated by war requirements. Production in 1940 was 29,809 tons up on 1939, with another increase in 1941 estimated at 23.5%.

Canada is still building military camps in which wallboard plays an important part and there is still a good demand from Great Britain for re-construction purposes. Production was up 26,707 tons in 1940 and estimates for 1941 show more than 16% of an increase. There is no indication that the demand will lessen as long as the war lasts or as long as democratic territories are vulnerable to the enemy.

Fine paper makers have had much the same conditions to face, with a few extra headaches. Exchange rates eliminated imports and threw the entire burden on the domestic trade while the demands of scores of new industrial plants had to be met as well as increased demand from regular sources caused by increased activities. A modest 7% increase in production in 1941 is indicated, but with the narrower range of colors and sizes the fine paper makers have been able to meet all requirements so far. What more can be done to meet the situation, if the demand continues to increase, remains to be seen. Definite restrictions on the use of fine papers may not be an impossibility, it is intimated in some quarters.

Newsprint Demand Steady

Newsprint is not so directly connected with the war effort, though in former wars there was always a great expansion in the use of newsprint. Circulations were not only larger, but greater space was given to war news with a consequent increase in size of newspapers. This has not been the case in this war. While circulations may have shown some improvement, the radio seems to have taken the edge off the public's demand for more and greater newspapers. We have yet to learn of a special edition having been issued since the war began. All this has been favorable, rather than unfavorable to the newsprint industry. Otherwise, the industry would have been hard pressed to meet the demands arising from the elimination of the Scandinavian sources of supplies. In spite of the loss of nearly 160,000 tons of newsprint to the overseas markets, primarily due to enforced restrictions on the use of newsprint and the conservation of exchange by the importing countries, as well as shipping space, the industry pretty well held level with last year. The spread of hostilities in the Far East will certainly have its effect on this year's business, but the outlook is for another year's activities at about the same levels.

Trend of Pulp Exports Upward

Pulp is more intimately affected by the war inasmuch as large quantities are being used in the manufacture of explosives, both in Canada and in Great Britain. Here again the affect of the war on the Scandinavian countries is more apparent. Since the beginning of the war Canada's pulp exports jumped remarkably and it is expected that before this year is out they will have reached a figure double that of pre war days.

How much further the present capacity of the Canadian pulp industry can be stretched remains for the ingenuity of operating executives to discover, but it is not unlikely that before the present unpleasantness is finished pulp mills in this country will be doing even better than they are doing at present, by even as much as 20-25% or more.

All this is based on the presumption that there will be no legal restrictions placed on the use of paper until it is apparent that the industry cannot take care of the essential requirements of an all-out war effort. This, in turn, means that the outlook for the paper industry, in all branches, is one of continued maximum activity.

Paper Club to Hold Banquet

At a meeting this week of the Board of Governors of the Paper Club of New York it was decided to hold the annual banquet during Paper Trade Convention Week on Wednesday evening, February 18.

President Arthur W. Pohlman announced the appointment of the following banquet committee—Stanley R. Andrews, chairman, H. P. Andrews Paper Company; H. P. Price, A. Price & Son; E. F. Miles, Crocker-McElwain Company; Ben K. Doscher, Lily-Tulip Cup Corporation; Harry Miller, Paper and Allied Trades Mercantile Agency; Charles C. Walden, Jr., Walden, Sons & Mott, Inc. and Lewis R. McCurdy.

The committee has reserved the Grand Ball Room of the Waldorf-Astoria and announces that it will be a formal stag affair. There will be no speeches, but an elaborate entertainment program is being arranged. Tickets will be $10.00 and reservations should be sent to Stanley O. Styles at 41 Park Row, New York. The net proceeds will be given to the American Red Cross.

It is also stated that The Paper and Twine Club will co-operate in the banquet, and invitations will be sent to members of that organization.

Chicago Reports Paper Market Is Steadier

Demand Continues Heavy In Most Lines With Some Book Paper Items Currently Less Active—Salesmen Plan For N.P.T.A. Meetings During Paper Week In New York—OPM Standards May Aid.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 19, 1942—There seems to be no let-up in demand as far as the Chicago paper market is concerned. Going into the second half of the first month, local paper executives report a genuine buying interest although some of the hysteria which characterized earlier proceedings is now not so noticeable. The only exception to the broad upward surge is in two-sided coated papers and a few other book lines used, generally in advertising procedure. In fact, local analysts are wondering if the extreme shortages in some lines and the general realization that it is supply and not demand which will be the chief 1942 problem, will not result in some actual over-supplies of coated book lines for offering to the public. Otherwise, demand continues good with close attention being consistently given to the job of self-policing. While some members of the trade are anticipating "ceiling" orders there continues to be a pronounced feeling that voluntary efforts to curtail unwarranted price increases will be helpful not only in rice Control bill No. 1 but in subsequent adjustments certain to come.

Demand Expected to Continue

Those who supply paper to the retail trade have been closely studying the proposal to dedicate 50 billions of dollars to war purposes and find that even with this enormous expenditure the purchasing power of the country will be appreciably higher than in 1933 if national income runs over $100,000,000,000 which is considered a conservative estimate. Students of demand also point out that the money spent for War work will find its way into the pockets of thousands and thousands of men and women hitherto denied any thing resembling luxuries who will make for a strong upward demand in 1942. The paper industry, according to local reports, therefore has really two fundamental problems. These are getting the goods to sell to meet this demand and the gearing of merchandising and selling facilities to meet the requirements of a trade now experiencing the job of developing a new type of demand and from a new quarter. Here, again, the paper industry is reported to have anticipated shortages through wise counsel in the saving of paper in all forms and in the development of substitutes in types and grades—even of an "ersatz" variety—which will be helpful in 1942.

Writing Paper Heads Meet Here

The Writing Paper Manufacturers Association met in Chicago this week, perfecting plans with reference to the coming meetings of the National Paper Trade Association and thoroughly reviewing the present market situation. The meetings, held at the Drake Hotel in this city, were exceptionally well attended by executives coming from all parts of the country.

Salesmen Plan for N.P.T.A. Sessions

The western division of the Salesmens Association of the Paper Industry utilized its Monday, January 12, meeting to discuss the participation of the Sapeyes at the N.P.T.A. meetings in New York City on February 16, 17 and 18. The annual salesmens luncheon will be held on February 17 but it is reported that no speaker has been selected although four or five nationally known figures are now receiving careful consideration. The Western Division will continue its plans of giving the convention some real advertising but, as in the past year or so, will make no effort to develop special train facilities, relying on each sales executive to make his own reservations. This change was made as members began to either drive their own cars through, use the airplane or the railroad to make it a hard job to fill out special train or car requirements. From preliminary estimates made on January 12 it is expected that the Salesmens Association of the Paper Industry will be better represented at the February annual sessions than at any time in the past.

OPM Standards May Help Industry

W. N. Gillett, executive head of the Chicago Paper Company, is recently quoted as having said that Office of Price Maintenance standards for paper will not "work any great hardship on the graphic arts industry but rather in many cases prove of permanent benefit to the paper and printing trade. Under pressure industry does things that should have been done anyway and given a common objective, which we now all have, the paper industry can and will operate more effectively than ever before."

Chicago Jobber Moves to Larger Quarters

The move to larger quarters made by Parker, Thomas & Tucker, Chicago paper jobbers—has now been officially announced. The new address will be 512-532 South Peoria street, considerably west of the present location on Canal street. A long term lease has been signed for the new and more adequate space which is to be utilized to "provide the finest of service for Chicago paper buyers". Phone number will be Chesapeake 2300.

Moore in Service

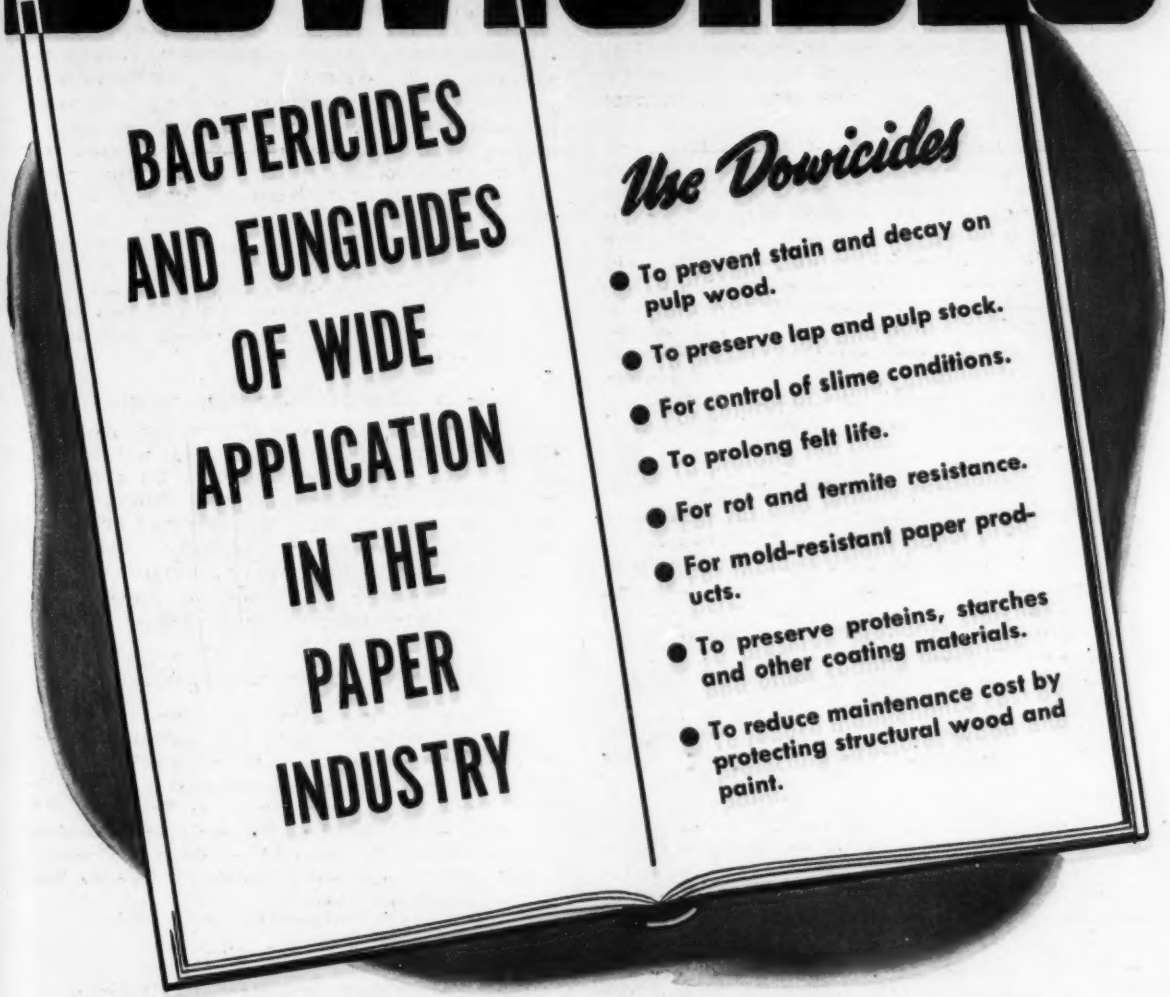
Harold M. Moore, St. Louis representative of Manning, Maxwell & Moore, Inc., for several years a reserve army officer, has been called for active duty with the commission of Captain.

While his many friends in the St. Louis district will miss him, they will be glad to know of his active participation in the present emergency. He is located at Camp San Luis Obispo, Cal., with the 40th Infantry Division, Field Artillery.

Manning, Maxwell & Moore, also announce the engagement of James H. Withers as a new representative working out of their Los Angeles office.

Mr. Withers' sales efforts will be directed to the distribution of Ashcroft Gauges, Hancock Valves, Consolidated Safety Valves and American Industrial Instruments.

DOWICIDES


BACTERICIDES AND FUNGICIDES OF WIDE APPLICATION IN THE PAPER INDUSTRY
Use Dowicides
● To prevent stain and decay on pulp wood.
● To preserve lap and pulp stock.
● For control of slime conditions.
● To prolong felt life.
● For rot and termite resistance.
● For mold-resistant paper products.
● To preserve proteins, starches and other coating materials.
● To reduce maintenance cost by protecting structural wood and paint.

The DOWICIDES are a group of chlorinated phenols, phenyl phenols and their sodium salts which have a wide application in the paper industry as germicides, fungicides and algaecides.

From the raw material stage—pulp logs—through the many manufacturing processes to the final production of finished paper products, the DOWICIDES are being effectively used to control the bacteria and fungi which cause odor, bad color, spoilage, loss of stock, slime and mold growth.

For more complete information on specific uses of DOWICIDES in the paper field, write Dow today.

Dowicide Trade Mark Reg. U.S. Pat. Off.

DOW

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York City, St. Louis, Chicago, San Francisco, Los Angeles, Seattle, Houston

TAPPI Annual Meeting Tentative Program

Commodore Hotel, New York, N. Y., February 16-19, 1942

Program of Monday, February 16, 1942

9:30 A. M. GENERAL SESSION
W. H. Swanson, Chairman (East Ball Room)

Secretary's Report by R. G. Macdonald
President's Address by W. H. Swanson
Tellers Committee Report
Special Committee Reports

1. *The Electron Microscope and Its Application in the Pulp and Paper Industry* by G. R. Sears and E. A. Kregal.
2. *Recent Directives of the OPM relating to the Pulp and Paper Industry* by John F. Darrow.
3. *Trends in Nonfibrous Raw Materials for the Paper Industry* by E. N. Poor.

2:00 P. M. WATER SESSION
L. B. Miller, Chairman (East Ball Room)

1. *Water Treatment for the Pulp and Paper Industry* by W. R. Gibson.
2. *The Spiractor Lime-Soda Water Softener* by Howard L. Tiger and Martin E. Gilwood.
3. *Chemical Character of Water Available for Pulp and Paper Manufacture in the U. S. A.* by W. D. Collins.
4. *Calcium Bicarbonate Removal from Water Benefits Sulphate Mills* by H. W. Frazer.
5. *Flotation Treatment of White Water* by E. N. Poor and H. A. Whitenight.
6. *The Ranney Water Collector* by J. F. Rhoades (by title).

2:00 P. M. ACID PULPING SESSION
H. F. DuBois, Chairman (Rooms B-C)

1. *Semichemical Pulp from Arkansas Delta Hardwoods* by J. W. McGovern and G. H. Chidester.
2. *A Further Comparison of Sodium and Calcium Base Sulphite Acids* by M. O. Schur and R. E. Baker.
3. *Report on* TAPPI *Chip Packing Survey.*
4. *Refined Neutral Sulphite Semichemical Pulps from Douglas Fir* by H. E. Peterson, M. W. Bray and G. J. Ritter.
5. *Control of Direct Heated Sulphite Digesters* by J. F. Inderdohnen.

2:00 P. M. CHEMICAL METHODS OF TESTING SESSION
B. L. Browning, Chairman (West Ball Room)

1. *Monoethanolomine Extraction of Wood for the Determination of Cellulose* by E. C. Jahn, Philip Bloom and L. E. Wise.
2. *Cupri-Ethylene Diamine as a Solvent for Cellulose Fractionation* by F. L. Straus and R. M. Levy.
3. Discussion of Viscosity Measurements and Other Chemical Methods.
   a. *A Comparison of the Capillary Flow and Falling Sphere Methods of Determining the Viscosity of Cellulose in Cuprammonium Solutions* by R. S. Hatch, R. W. Hammond, J. J. McNair.
   b. *The Influence of Elemental and Active Oxygen on the Basic Viscosity Measurement of Cellulose* by Emil Scheller (translation by E. A. Webber and E. D. Rich.
   c. *A Critical Review of the Translation of Dr. Scheller's Paper* by J. L. McCarthy.
4. *Cross Sectioning of Paper* by J. H. Graff (by title).

Program of Tuesday, February 17, 1942

9:30 A. M. ALKALINE PULPING SESSION
Paul Hodges, Chairman (Rooms B-C)

1. *Sulphate Pulping by a Continuous Flow Method* by S. L. Schwartz and M. W. Bray.
2. *The Colored Materials of Alkaline Cooking Liquors* by G. C. Kimble.
3. *Causticizing, Reburning, and Settling in Sulphate Lime Recovery* by G. B. Hughey, L. K. Herndon and James Witherow.
4. *Kraft Black Liquor Washing on Two-Stage Vacuum Washers* by W. H. Pitkin.
5. *Use of Gypsum and Soda Ash as Substitutes for Salt Cake in the Kraft Recovery System* by T. T. Collins, H. J. Hotz and E. Wiberg (by title).
6. *The Use of Aldehydes in the Analysis of Sulphate Liquors for Total Alkali.* by R. Moltzau (by title).

9:30 A. M. GRAPHIC ARTS SESSION
M. S. Kantrowitz, Chairman (East Ball Room)

1. *Status of the Printing Industry* by A. E. Gessler.
2. *Paper Characteristics and Their Relationship to Ink Coverage* by George Cramer.
3. *Testing Methods for Evaluating the Printing Qualities of Paper* by W. F. Talbot.
4. *Testing Printability of Paper with Ink* by F. A. Weymouth.
5. *What is Tack?* by Henry Green.

9:30 A. M. PREPARATION OF NONFIBROUS MATERIALS AND COATING SESSION
C. M. Connor and J. D. Davis, Chairmen (West Ball Room)

1. *Structural Viscosity Studies of Coating Clay Compositions* by G. H. Sheets.
2. *The Colloidal Properties of Aqueous Dispersion of Fillers* by S. W. Martin.
3. *Alum Substitutes* by H. E. Duston.
4. *Starch for the Papermaker* by J. P. Casey.
5. *A Precipitated Starch Product* by C. C. Kesler and W. C. Black.
6. *The Advantages of Sulphonated Tall Oil in Manufacturing Coated Paper* by Edmund Getty (by title).

2:00 P. M. OPTICAL PROPERTIES AND GRAPHIC ARTS SESSION
M. N. Davis, Chairman (Rooms B-C)

1. *The Physical Basis of Standardization of Brightness Measurements* by J. A. Van den Akker, Philip Nolan and W. A. Wink.
2. *The Influence of Certain Variables in Forming Brightness Handsheets* by C. M. Koon and D. D. Niemeyer.

"With GULF ENGINEERING SERVICE we're getting a 'production bonus' from our equipment"

says this Superintendent

● "This report tells a story of improved lubrication practice," says this superintendent. "You'll note that we're getting a considerable increase in plant output by following Gulf Engineering recommendations. This 'production bonus' is the direct result of more efficient operation of equipment and a big reduction in shutdowns and delays."

Production and maintenance reports covering hundreds of industrial operations show that *definite, measurable* benefits are secured with the help of Gulf Engineering Service: maximum protection against machine failures and delays, most efficient machine performance, and minimum power consumption. *Your* plant, too, should get these benefits of the best lubrication practice. Investigate—call in a Gulf engineer today. His thorough training and broad practical experience with equipment similar to yours can go right to work in your plant as soon as you say the word.

The services of a Gulf engineer—and the Gulf line of 400 quality oils and greases—are quickly available to you from 1200 warehouses in 30 states from Maine to New Mexico. Write or 'phone your nearest Gulf office today

GULF INDUSTRIAL LUBRICATION

GULF OIL CORPORATION · GULF REFINING COMPANY
GULF BUILDING · PITTSBURGH, PA.

3. *Conditions Required for the Calculation of Brightness from Spectrophotometric Data* by M. N. Davis.
4. *A Correlation between the Bausch & Lomb, Westinghouse, Blanchard, Sanborn Opacimeters* by E. D. Rich and H. D. Lange.
5. *Physico-Chemical Problems in Newspaper Printing* by S. Steinberg.

2:00 P. M. FORMING AND FINISHING AND STUFF PREPARATION SESSION
A. E. Bachmann, Chairman (East Ball Room)

1. *Two Sidedness of Colored Paper* by Otto Kress and E. J. Loutzenheizer.
2. *Affect of Light upon Papers* by H. F. Launer and W. K. Wilson.
3. *The Function of the Yankee Drier in the Paper Machine* by Kurt Wandel.
4. *Paperboard Defects and Some Remedies* by Pierre Drewsen.

2:00 P. M. FUNDAMENTAL RESEARCH SESSION
H. F. Lewis, Chairman (West Ball Room)

1. *Ten Years of Fundamental Research* by H. F. Lewis.
2. *A New Method for Measuring Specific Surface* by J. d'A. Clark.
3. *The Colloidal and Physical Phenomena relating to Freeness and Stock Drainage* by R. W. Reed.
4. *Optical Characteristics of Paper as a Function of Fiber Classification* by S. R. Parsons.
5. *Properties of Wet Fiber Mats: Effect of Temperature and Surface Tension on Recovery from Compression Deformation* by C. O. Seborg and F. A. Simmonds.

Program of Wednesday, February 18, 1942

9:30 A. M. HEAT AND POWER SESSION
Roderick O'Donoghue, Chairman (West Ball Room)

1. *Lighting for Plant Efficiency and Safety* by A. K. Gaetjens.
2. *Application of Radiant Heat to Industry* by J. D. Hall.
3. *Fuels and Their Application* by E. F. Burns.
4. *Drying Rates for Fourdrinier Kraft Paperboard* by A. E. Montgomery.
5. *Steam Saved by Better Water Removal at the Presses* by W. G. MacNaughton.
6. *Modern Trends in Combustion Control* by M. J. Boho.

9:30 A. M. STUFF PREPARATION SESSION
W. D. Harrison, Chairman (East Ball Room)

1. *Straw Collection Problems and Quality for Industrial Use* by E. C. Lathrop and J. H. Shollenberger.
2. *Defibering of Kraft Screenings* by C. K. Textor.
3. *The Chemipulper* by J. B. Beveridge.
4. *Tabular Determination of Paper Machine Hourly Production* by Edward W. Jones.

9:30 A. M. MECHANICAL PULPING SESSION
R. F. Huntley, Chairman (Rooms B-C)

1. *Development of Naval Stores and Pulpwood Supplies from the Pinus Mercusi of Northern Sumatra* by D. G. Moon.
2. *Round Table Discussion on the Use of Groundwood in the National Defense Program.*
   a. *Use of Groundwood Papers by Peter J. Massey.*
   b. *Technical Developments in the Use of Groundwood* by Lyman Beeman.

2:00 P. M. MATERIALS OF CONSTRUCTION SESSION
J. A. Lee, Chairman (Rooms B-C)

1. *The Relationship of Thermal Insulation to Mill Efficiency* by R. C. Parlett.
2. *Sprayed Metals for Maintenance* by W. B. Croan.
3. *Materials Priorities* by J. Ritchie.
4. *Physical and Chemical Properties of Synthetic Rubber* by D. Hawkins.

2:00 P. M. PULP PURIFICATION SESSION
D. T. Jackson, Chairman (East Ball Room)

1. *Pulp Chlorination in the Pipeline* by G. A. Petroe and R. R. Fuller.
2. *Procedure and Brightness Grades in Bleaching Sulphate Pulps* by J. D. Rue and S. C. Nagel.
3. *Bleaching of Gumwood Sulphate* by J. D. Rue and S. C. Nagel.
4. *Alkaline Purification of Cellulose* by G. Goldfinger and H. Mark.
5. *Economies in Chlorine Consumption in Bleaching Chemical Wood Pulp* by T. W. Toovey, J. D. Rue, etc.
6. *Multistage Bleaching of Kraft Pulp* by S. D. Wells and F. B. Shelhorn (by title).

2:00 P. M. CONTAINER SESSION
J. D. Malcolmson, Chairman (West Ball Room)

1. *Sewed Closures for Paper Bags* by J. S. Simpson, G. R. Beebe and A. W. Koon.
2. *The Chemical Industries as Potential Users of Paper Containers* by R. W. Lahey.
3. *Testing of Greaseproof Papers* by Philip Nolan.
4. *A Ply-Bonding Strength Test for Papers and Paperboards* by J. F. Halliday and A. T. Luey.

Program of Thursday, February 19, 1942

9:30 A. M. FUNDAMENTAL RESEARCH SESSION
H. F. Lewis, Chairman (East Ball Room)

1. *The Behavior of Some Lignin Preparations in the Molecular Still* by J. F. Hechtman.
2. *Lignins Isolated in the Presence of Butanol* by H. Y. Charbonnier.
3. *The Relation of Lignin Content to the Strength of Paper and Boards* by E. C. Jahn.
4. *Estimation of the Dualdehyde Type of Oxidation in Periodate Oxystarches and Oxycelluloses* by D. H. Grangaard, E. K. Gladding and C. B. Purves.

9:30 A. M. BACTERIAL CONTROL SESSION
Allen Abrams, Chairman (Rooms B-C)

1. *Effect of Mill Operations on the Number of Bacteria Found in Paper Products* by J. R. Sanborn.
2. *The Lethal Effect of Drier Rolls upon Bacteria* by J. W. Appling and B. F. Shema.
3. *Microbiological Deposits and Bacteriological Corrosion* by A. E. Griffin.

9:30 A. M. ENGINEERING RESEARCH SESSION
R. P. Whitney, Chairman (West Ball Room)

1. *Theoretical Approach to the Design of Heat Exchangers* by B. F. Smith and H. A. Du Bois.
2. *Heat Transfer Characteristics of an Indirectly Heated Digester* by J. G. L. Caulfield, L. C. Jenness and G. L. Nystrom, Jr.

3. *A Correlation of Pressure Drop Data Applied to Pulp Suspensions* by James Cooper, L. C. Jenness and J. G. L. Caulfield.
4. *The Flow of Pulp Slurries Over Weirs* by J. D. McNitt and R. P. Whitney.
5. *Electrolytic Titration of Black Liquor* by W. J. Nolan.

1:00 P. M. ANNUAL LUNCHEON
W. H. Swanson, Chairman (Grand Ball Room)

1. *What is the Future of Economic Man* by Sir Herbert Gepp, Chairman, Australian Paper Mills.
2. TAPPI *Medal Award*
   Presented by R. A. Hayward, Kalamazoo Vegetable Parchment Company.
   Received by Robert B. Wolf, Pulp Division, Weyerhaeuser Timber Company.
3. Brief Remarks by Invited Guests.

Program of Friday, February 20, 1942

At the Polytechnic Institute of Brooklyn, 85 Livingston Street, Brooklyn, N. Y.
Symposium on Viscosity, Particle Size, and Particle Shape, Sponsored by the Society of Rheology.
10:30 A. M. *Theoretical Fundamentals of the Viscosity of Solutions.*
Visit to Laboratories
2.00 P. M. *Recent Experiments* by M. Lauffer.

Committee Meetings

The following rooms have been assigned to committees for use in preparing projects and programs for the coming year. Anyone interested may attend.

MONDAY, FEBRUARY 16, 1942

2:30 P. M.
Nonfibrous Raw Materials—Room A
Fundamental Research—Room D
Engineering Research—Room E
Industrial Engineering—Room F
Heat and Power—Room G

TUESDAY, FEBRUARY 17, 1942

10:00 A. M.
Microscopy—Room F
Materials of Construction (Piping)—Room G
2:30 P. M.
Containers—Room D
Acid Pulping—Room E
Water—Room F
Materials of Construction (Packing)—Room G

WEDNESDAY, FEBRUARY 18, 1942

10:00 A. M.
Alkaline Pulping—Room E
Mechanical Pulping—Room F
Pulp Purification—Room G
2:30 P. M.
Preparation of Nonfibrous Materials—Room E
Coating—Room G

THURSDAY, FEBRUARY 19, 1942

10:00 A. M.
Testing Division—Room A
Forming and Finishing—Room E
Graphic Arts—Room F
Stuff Preparation—Room G

College Reunions

Massachusetts Institute of Technology, M.I.T. Club, 24 East 39th Street, New York, N. Y., Tuesday, February 17, 12:45 P. M.
University of Maine, South Room, Commodore Hotel, Wednesday, February 18, 1:00 P. M.

Ohio TAPPI and Superintendents Meet

The Ohio Section of the Technical Association of the Pulp and Paper Industry and the Miami Valley Division, A.P.P.M. Superintendents Association met jointly at the Anthony Wayne Hotel, Hamilton, Ohio, on Saturday evening, January 17. Harry E. Hadley of the Gardner-Richardson Company presided as chairman.

R. E. Howe of Appalachian Coals, Inc., was the principal speaker and talked on National Defense and Business. Mr. Howe quoted at length from the National Association of Manufacturers bulletin on Defense and Industry. In this it was pointed out that this Country is fighting for the four freedoms. He also told what the coal industry is doing in the present emergency and stated that plenty of coal is available if the railroads and users cooperate in making plenty of coal cars available. Following the war he felt that we would have considerable prosperity because of the built up backlog of consumer needs.

Oscar Stamets and R. L. Eminger, president and secretary of the Superintendents Association were present and told about the preparation for the Grand Rapids convention.

R. G. Macdonald, secretary of the Technical Association reported on the addresses presented at the joint meeting in Kalamazoo and described the new pamphlet on paper which has been prepared under the sponsorship of the Technical Association and which is expected to be distributed to 300,000 or more employees of the paper mills. This pamphlet describes the part that paper is playing in the national defense program.

Philadelphia Association Elects Officers

At the annual meeting of the Philadelphia Paper Trade Association held on January 13 at the Downtown Club, the following officers were elected or reelected for the coming year: president, George Weaver, Garrett Buchanan Company; vice-president, in charge Fine Paper, Edward Walter, Wilcox-Walter-Furlong Paper Company; vice-president, in charge Wrapping Paper, Charles Wilder, Wilder Brothers; treasurer, W. Predmore, Paper Merchants, and secretary, R. W. Fishburn, Whiting Patterson Company.

The Board of Directors for the year will comprise the following:

Fine Paper Division—W. Predmore, Paper Merchants; Ralph Luff, D. L. Ward Company; George Weaver, Garrett Buchanan Company; John P. Schmidt, T. W. Price Company; Edward Walter, Wicox-Walter-Furlong Paper Co.; R. W. Fishburn, Whiting Patterson Company.

Wrapping Paper Division—Nathaniel Saxe, The Saxe Paper Company; Butler Smythe, The J. L. N. Smythe Company; Charles Wilder, Wilder Brothers; George Goldman, Goldman Paper and Paper Stock Company; George K. Hooper, Hooper Paper and Twine Company; W. B. Killhour, The Quaker City Paper Company.

Kalamazoo TAPPI and Superintendents Meet

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry and the Michigan Division of the Superintendents Association met at the Park-American Hotel, Kalamazoo, Mich. on Thursday evening, January 15, 1942. George H. Gerpheide, president of the Hawthorne Paper Company presided as chairman.

Guests Introduced

The following seated at the head table were introduced: Henry Neudorf, chairman of the Michigan Div.; Fred Chappell, Jr., Chairman of the Kalamazoo Valley Section; D. C. Everest, Marathon Paper Mills; Oscar Stamets, President of the Superintendents Assoc.; W. H. Swanson, President of TAPPI; R. A. Hayward, Vice President of TAPPI; R. G. Macdonald, Secretary of TAPPI; R. L. Eminger, Secretary of the Superintendents Assoc.; Grover Keeth, Marathon Paper Mills; Dwight Stocker, Michigan Paper Company; Theodore Dunn, Dunn Sulphite Paper Company; Stan. Blankinship, Port Royal Pulp & Paper Company; Ray Barton, Michigan Paper Company; Frank Libby, Kalamazoo Vegetable Parchment Company; W. K. Kidder, Bryant Paper Company; Arnold Weller, Al Perlick, Glenn Sutton, Joe Waber, Arthur Weinland and Frank Hamilton.

E. W. Tinker Speaks

E. W. Tinker, Executive Secretary of the American Paper and Pulp Association was the principal speaker and talked on what the war means to the industry. He said, in part, that the industry was the first to make an inventory of its needs. In the program of conservation certain metals and chemicals will need to be restricted in use 30-40% and will require ingenuity on the part of the technically trained men to find useable substitutes. There will be paper shortages in some grades. This necessity has been aggravated by buying speculation. There is evidently a desire on the part of the OPA to establish fair prices to permit profits. Allocation of materials is being used to a growing extent and is superceding the priority system. He recommended that executives pay close attention to the week by week moves in Washington and gradually get their mills making paper required for defense and essential consumer needs. Lower basis weights will be used. Every effort should be made to reduce the impact of the defense requirements on mills and to plan for the post-war period. The questionnaires sent out by the Association should be answered since the facts obtained thereby will give the authorities the best basis for making plans that will affect every mill.

Those in Attendance

Those in attendance were as follows:—F. R. Hamilton, H. B. Johnston, W. A. Kirkpatrick, Bob Ludwig, Ivan Randall and Joe Widmeyer, Allied Paper Mills; George C. Culver, Allis-Chalmers Manufacturing Company; Willard Barnhart, II, John P. Boyle, L. C. Clark, Kenneth Conrad, Defoe Edgerle, Harvey Hartman, T. C. Hazard, Carroll E. Slocum and Wendell R. Tobin, American Box Board Company; C. H. Bellington, Herbert C. Church, E. V. Duhamell, J. F. Halladay, A. T. Luey, C. G. Pearson, B. M. Thomas and Carl Weaver, American Coating Mills; A. W. Ayles, W. G. Foard, Jr., V. Heinmuller, J. C. Johnston, John R. Miller, James W. Phillips, Kenzie Phillips, Harold Sinclair and E. B. Taylor, American Cyanamid and Chemical Corporation; E. W. Tinker, American Paper and Pulp Association; Frank F. Schmiege and George Shinners, American Wire Cloth Company; Jack Amey; Carl F. Hoelderle, Anheuser-Busch, Inc.; N. J. Berger, Armstrong Machine Works; John Roslund, Asten Hill Manufacturing Company; W. W. Galloway, Bauer Brothers Company; R. J. Beveridge, A. E. Fitzgerald, E. E. Ludwig, J. P. Reardon, Jack Simon, T. E. Torgerson and M. J. Vander Slick, Bermingham & Prosser; Arthur Gilchrist, M. V. Roe, C. M. Treat and E. C. Wilbur, Bond Supply Company; Lloyd F. Baker, Forrest Bloom, Robert T. Bohs, William Brower, Marlowe Burns, W. E. Cardiff, Wayne Case, Chris F. Coertse, J. V. Corsette, E. T. A. Coughlin, Elmer L. Crawford, Wayne E. Crotty, Art DePew, A. Dykens, O. F. Fischer, Claude Fletcher, Harold Foster, P. H. Gideon, Lester Gilmore, W. H. Hamilton, L. Hegedus, W. Kent Kidder, W. J. Lawrence, Jr., Kenneth W. Matevia, Jack Mathis, A. B. Milham, James A. Mills, W. Murphy, Fred G. Myers, Roy Noble, A. E. Nye, Sr., W. M. Parkes, C. R. Pasch, Orville Ream, Boyd Reifsnyder, John L. Russell, E. C. Rutz, Wayne B. Sackett, Chris Schrier, M. Shea, C. F. Somerville, Irwin J. Starrett, Harvey E. Sweetland, William Van Dam, Paul Vander Pol, Archie Webb, Merle R. Wilkins and Leo A. Willoughby, Bryant Paper Company.

Harry D. Eliason, Cellulose Sales Company, Inc.; A. Hendricks, Ted Henry, Robert Knickerbocker, W. Powers, Jr. and H. Scott Smith, Central Paper Company; Paul Dumas, Chromium Corporation of America; James Page, Combustion Engines, Inc.; G. N. Carleton, Roy Davis and William Philip, Detroit Sulphite Pulp and Paper Company; R. D. Freeman and M. B. Turner, Dow Chemical Company; George T. Dunn, Theodore W. Dunn, Allen B. Stevens and Herbert G. Wales, Dunn Sulphite Paper Company; LeRoy Byers, H. H. Henderson, E. R. Shimp, Jr., John R. Stimson, Harry Bakeman, Claude Kramer and Orville Oldfield, Eddy Paper Corporation; Olin W. Callighan, Edgar Brothers Company; J. F. Keville and William R. Zwecker, Filer Fibre Company; Myron F. Flotow, Frederick Franz, H. E. Gracy, Floyd Thomas and Everett G. Walker, French Paper Company; Glen Cathey, B. F. Goodrich Company; Norman J. Cowie, T. B. Doolittle, G. H. Gerpheide, J. S. Hilliard, Fred H. Hodgemire, Leonard R. Nowell, William Olcott, E. J. Roomsburg, C. C. Schneider, Peter Siwik and M. H. Stetson, Hawthorne Paper Company; R. D. Howerton, W. L. Shaw and A. P. Wandtke, Heller & Merz; P. W. Bartholomew, Arthur G. Dreis, C. D. Ender, A. R. Kloorsterman, R. T. Mashburn, Fred K. Shankweiler and H. O. Ware, Hercules Powder Company; C. B. Smith, Huron Milling Company; K. J. Kimball, Improved Paper Machinery Corporation; James M. Alden, H. W. Frazer, Allan T. Sedgwick and J. F. Steinbrunner, International Printing Ink Division of Interchemical Corporation; Edward Minnard, Kalamazoo Paper Box Company; Jacob Boodt, J. M. Causey, Bert H. Cooper, Ernest DeVall, H. Frank, C. W. Gilman, M. P. Kalleward, Glenn T. Ingling, O. I. Ingling, A. O. Jacobs, Harry

FROM THE ORIGINAL, PAINTED ESPECIALLY FOR NIAGARA ALKALI COMPANY BY FRED FREEMAN

WHEN TWO strong beams of light are focused on a course of progress each serves to strengthen the other and create a single beam of more concentrated power and efficiency. The resources of Niagara Alkali Company and Electro Bleaching Gas Company have thus been centered in one organization on one course to become a more powerful, efficient and useful organization to the industries they have each been serving separately. As one closely integrated whole, operating with combined manufacturing, research and personnel facilities, this company now serves the former customers of each under the name of NIAGARA ALKALI COMPANY.

EBG Niagara ALKALI COMPANY

60 EAST 42nd STREET, NEW YORK, N. Y.

CAUSTIC POTASH · CAUSTIC SODA
PARA · CARBONATE OF POTASH
Liquid Chlorine

D. Jager, G. T. Jubb, Adam Kuchta, Jack Mahoney, Leon H. Mimms, Walker H. Sisson, John Vander Kolk, Carl Walker and James A. Wise, Kalamazoo Paper Company.

R. W. Van Peenan, Kalamazoo Plug Company; H. M. Greenfield, Kalamazoo Stationery Company; M. H. Coombs, Kalamazoo Tank and Silo Company; Ben Allmis, John Aube, Harold Ball, Philip Bixby, Lawrence Busch, Thomas W. Peck, C. Chadderdon, Lester Clark, Everett Merle Coleman, Carl D. Cole, Harley Clinard, G. F. Des Autels, Glen C. Fisk, A. Gilman, A. H. Gragg, W. F. Hathaway, Jack Hayward, R. A. Hayward, C. E. Henton, L. P. Hill, Herman Hagerman, Fred Hunt, R. H. Hurst, G. A. Johnson, William Kottman, Lester LaLiberte, Verton La Liberte, Frank Libby, Clarence Loehr, John Mauer, James F. McNutt, Glen C. Mitchell, Del Moffett, Lyle Olson, John Pelong, Al Perick, Arthur Phillips, John S. Reid, Asa P. Rice, G. H. Rice, Lester Robbins, Marion Rupert, Marshall Rutz, Hugh Smith, Lester Smith, A. Southon, Ike Sparks, K. L. Stratton, Robert B. Stewart, Lewis Stuckum, Willis Taylor, I. Triestram, Henry Verow, J. D. Wolf and Lee Yeckley, Kalamazoo Vegetable Parchment Company; E. J. Kelly and Paul Thomas, E. J. Kelly Company; W. H. Swanson, Kimberly-Clark Corporation; Ralph Atkins, N. Bardeen, Harold F. Dewey, James Fielding, Charles Gardner, C. A. Patchell and Arthur Weinland, Lee Paper Company; W. F. Costello, Joe Loughead, Robert Short and Charles D. Spencer, Joseph E. Loughead Company; Charles Cushman, Everett Nicholas, Max Nicholas, C. F. Sisson and Walter F. Wolfe, Mac Sim Bar Paper Company; D. C. Everest and Grover Keeth, Marathon Paper Mills Company; M. S. Clark and L. E. Russell, Mathieson Alkali Works; Loker Chittenden and W. P. Dohne, Michigan Alkali Company; E. H. Barnes, Rex Bradt, M. C. Jones and Frank Stowitts, Michigan Carton Company.

William Astle, Ray L. Barton, C. A. Braginton, F. L. Brown, Lloyd Brown, Robert Crowell, Chauncey Davis, Paul DeGuehery, Merton S. Fogerty, A. E. Hays, Joseph Klein, Edward MacDonald, Howard McCoy, Harry Meech, Dwight L. Stoker and Floyd Stratton, Michigan Paper Company; D. R. Erickson, Michigan Research Laboratories; Daniel Bert, James Ray Hunt, George J. McMahon, Thomas McNally and Charles E. Raney, Monroe Paper Products; G. W. Liedholz, National Aluminate Corporation; James B. Clark, S. V. Cottrell and E. A. Johnson, National Aniline Division of Allied Chemical and Dye Corporation; J. W. McClaran, National Starch Products; Jacob Parent, Noble & Wood Machine Company; Frank B. Eilers, Orr Felt and Blanket Company; K. N. Chappell, R. J. Suess and R. W. Shew, Otsego Falls Paper Mills, Inc.; H. E. Stratton, Paper Mill News; Benjamin F. Soffe, Permutit Company; H. C. Pearson, Pioneer Paper Stock Company; S. G. Blankinship, Port Royal Pulp and Paper Company; Harrison Starr, Price & Pierce, Ltd.; Harry G. Bradford, A. W. Cole, F. D. Gilchrist, Hod Heath, John King, Henry Nendorf, Ed Noble, John G. Ruimveld and Joe Weber, Rex Paper Company; Oscar Stamets, Riegel Paper Corporation; A. E. Montgomery, J. O. Ross Engineering Corporation; Frank D. Bullock, U. E. Moss and John H. Peatling, Saniwax Paper Company; C. A. E. Harding, Shuler & Benninghofen; P. S. Cade, Stein-Hall Manufacturing Company; Robert L. Eminger, American Pulp and Paper Mill Superintendents Association; Dallas Bachelder, J. P. Bachelder, H. A. Barnes, R. J. Barthold, Henry Bongers, Fred L. Chappell, Jr., Thomas R. Colachicco, E. A. Dunton, E. B. Ferguson, Robert M. Heistand, J. T. Kirkpatrick, C. W. Lawrence, H. C. Lott, Charles F. McAleer, Sam H. Myers, Charles B. Rader, Clarence Schascheck, A. L. Sherwood, Erwin A. Slesdet, Charles Snyder, Embly Sutherland, L. W. Sutherland, Glen Sutton, Earl Taylor, Howard Vande Polder, P. J. Van Norden, Fred Weirich, Arnold Weller, Don M. Wilson and Elmer Worden, Sutherland Paper Company.

R. G. Macdonald, Technical Association of Pulp and Paper Industry; L. M. Mongreig, U. S. Rubber Company; Percy G. Abbott, B. K. Asdell, Floyd Crocker, H. S. Faram, Ed Harbin, Evans McWherter, P. C. LeMonte and Eldon Smith, Watervliet Paper Company; Ben Weisman, I. Weisman and Max Weisman, Weisman Brothers; William A. Geiger, Weyerhaeuser Timber Company; Bernard Benson and L. L. Griffiths, Jr., Williams-Gray Company; Earl Wingard, Kalamazoo Gazette; A. E. Woollam, A. E. Woollam Company; Homer Arnett; W. B. Clements and Homer E. Strafford.

December Newsprint Statistics

Production of newsprint in Canada during December 1941 amounted to 300,823 tons and shipments to 319,282 tons according to the Newsprint Service Bureau. Production in the United States was 81,680 tons and shipments 83,998 tons, making a total United States and Canadian newsprint production of 382,503 tons and shipments of 403,280 tons. During December, 24,450 tons of newsprint were made in Newfoundland, so that the North American production for the month amounted to 406,953 tons. Total production in December 1940 was 361,752 tons.

The North American output of newsprint paper in 1941 was 4,785,577 tons, of which 3,425,865 tons was made in Canada, 1,014,912 tons in the United States, and 344,800 tons in Newfoundland. The Canadian output was 0.2 per cent more than in 1940, that in the United States 0.1 per cent more, with a loss of 1.8 per cent in Newfoundland, making a net continental increase of 2,194 tons. With the exception of the abnormal year 1937, North American newsprint production in 1941 was the greatest on record.

Stocks of newsprint paper at the end of December were 123,571 tons at Canadian mills and 7,586 tons at United States mills, making a combined total of 131,157 tons compared with 151,934 tons on November 30, 1941, and 165,826 tons at the end of December 1940.

Return Steel Barrels Promptly

CHICAGO, Ill., January 22, 1942—To aid the conservation of steel for the American war program Standard Oil Company of Indiana today appealed to customers who receive lubricating oils and greases in steel barrels to return them as soon as they are empty so that all available barrels may be kept in circulation.

Standard will enclose the appeal with statements or other mail to customers or have drivers distribute to them . On steel barrels themselves a red, white and blue label will be applied reading: "Do your part—We will do ours. Return drums as soon as empty. Keep 'em rolling for defense!"

H. F. Farington Gets Judgment

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., January 19, 1942—Supreme Court Justice Henry Kimball has awarded H. F. Farington a judgment of $552.76, full amount of his demand, in a contract action brought against Benjamin Lessen, Syracuse business man. The latter represented a group of Syracuse financiers who carried on negotiations for the purchase of the Ogdensburg Paper Mills in 1940. Negotiations for the sale were dropped later after Mr. Farington, a public accountant, supplied information or data regarding the company. The information is said to have been supplied by Frank Augsbury, owner of the concern, who testified at the trial that he was not responsible for the sum due Mr. Farington. It was the second time that the case had been before the court, a default judgment having been granted the first time.

Pulp Consumers Hold Regional Meetings

George R. Wallace, president of the Fitchburg Paper Company, Fitchburg, Mass., and president of the Association of Pulp Consumers, Inc., together with C. V. Maudlin, secretary and treasurer of the association have just completed a series of regional meetings of pulp consumers held at Holyoke, Mass.; Syracuse, N. Y.; Philadelphia, Pa.; Dayton, Ohio; Green Bay, Wis., and Kalamazoo, Mich. The meetings were all very well attended and the consumers of pulp were extremely interested to learn from Messrs. Wallace and Maudlin the Government setup in Washington.

The following resolution was made, seconded and unanimously adopted at a meeting of the board of directors of the Association of Pulp Consumers, Inc., held on January 13, 1942:—

RESOLVED, that the board of directors of the Association of Pulp Consumers, Inc., urge that the General Preference Order M-52 issued on January 9, 1942 to conserve the supply and direct the distribution of sulphite wood pulp, be extended to include all wood pulp furnished by all Government suppliers, as defined under paragraph 3 of said order, which are required to furnish wood pulp on order of the United States Government including that supplied for export.

The following resolution was adopted at the same meeting:—

WHEREAS the United States has formally declared that a state of war exists, and

WHEREAS the successful prosecution of the war requires sacrifices and the unselfish effort of all individuals and corporations, now, therefore, be it

RESOLVED that the Association of Pulp Consumers, Inc., its officers and employees give all possible aid and cooperation to governmental agencies in furthering their plans for the successful termination of the war.

The following directors attended the meeting at Chicago:—N. H. Bergstrom, Bergstrom Paper Company, Neenah, Wis.; Austin E. Cofrin, Fort Howard Paper Company, Green Bay, Wis.; Glenn E. Graham, Sutherland Paper Company, Kalamazoo, Mich.; Hugo H. Hanson, W. C. Hamilton & Sons, Miquon, Pa.; Dwight G. W. Hollister, A. P. W. Paper Company, Inc., Albany, N. Y.; W. Irving Osborne, Jr., Cornell Wood Products Company, Chicago, Ill.; Carlton W. Smith, Miamisburg Paper Company, Miamisburg, Ohio; C. V. Maudlin, secretary and treasurer, Association of Pulp Consumers, Inc.; George R. Wallace, Fitchburg Paper Company, Fitchburg, Mass.

Mr. Wallace stated the association is working for a fair and equitable distribution of all available pulp. At the same time, he stated, the members of the association were giving full cooperation to all the Government agencies in Washington that have anything to do with the pulp and paper situation.

The annual meeting of the Association of Pulp Consumers, Inc., will be held at the Waldorf Astoria Hotel, at 3:00 P.M. Wednesday, February 18, 1942, at which time there will be a speaker from one of the Governmental agencies in Washington.

Inventories Over 15 Billion Mark

Manufacturers' inventories soared above the 15 billion dollar mark in November as producers in practically every industry sought to cover future production needs, the Department of Commerce reported recently.

The rise of approximately $450 million during the month lifted the total value of stocks to the highest point ever recorded and placed the nation in an exceptionally strong inventory position at the time of its entrance into the war.

Despite this huge volume of aggregate inventories, however, supplies of many basic raw materials, particularly metals, will be severely taxed by the production requirements of the steadily expanding war program. The necessity for conservation and for the proper allocation of these resources in the interest of maximum military output will call for increased governmental supervision over these supply areas. Thus, stocks of these materials should tend more and more toward the minimum levels necessary to maintain production.

The operation of tighter priority controls, allocation orders, new curtailments of consumer durables, and material scarcities, is increasingly evident from the character of the November inventory rise. Advances in this latest month were heavily concentrated in the nondurable goods industries in sharp contrast to the situation in earlier months when durable producers far outstripped those of nondurables in the building of inventories.

Producers of durable goods in November were generally unable to continue the record pace of accumulation maintained in prior months. Additions to their stocks were one-third smaller in November than in the previous month, and almost one-fourth under the average monthly addition made during the period since last June. Meanwhile, nondurable goods industries registered the largest inventory increase of the year. Every major industry group participated in the upward movement.

To Do Paper Converting

The Paper Converting Company was organized in October, 1941, to engage in paper converting at 295-309 Lafayette stret, New York City. The concern is equipped to do paper sheeting, slitting and rewinding, guillotine and die cutting. Harry Rimberg specializes for the concern in solving intricate paper converting problems now arising in defense industries using paper.

Special Offering of

LOCKWOOD—T.A.P.P.I. BOOKS

FOR THE

PAPERMAKER'S LIBRARY

BIBLIOGRAPHY OF PAPERMAKING

Compiled by C. J. West Ph.D.

VOLUME I—1900-1928 (95 copies available) (982 Pages).$10.00
VOLUME II—1929-1935—(17 copies available) (804 Pages) 8.00
VOLUME III—1936— .....out of print
VOLUME IV—1937—(31 copies available) (221 Pages) 3.00

Value $21.00

ALL THREE BOOKS-VOLS. I-II-IV for $17.50

VOLUMES I and II — Value $18.00 — If ordered together $15.00
VOLUMES I and IV — Value 13.00 — If ordered together 11.00
VOLUMES II and IV — Value 11.00 — If ordered together 9.00

It is evident from the few copies remaining for sale that these books will soon be out of print. They are invaluable to paper and pulp mills and to technical men. Irreplaceable as a source of reference on the literature of the industry for this century.

ORDER YOUR COPIES WHILE THEY ARE STILL AVAILABLE

PAPERMAKING MATERIALS $3.00

By C. J. West, Ph.D.—Research Associate and Editor
Institute of Paper Chemistry—Appleton, Wis.

There is a limited number of these books still available. If ordered with any of the bibliographies they can be secured at a real saving.

IF ORDERED WITH ANY TWO OR MORE VOLUMES OF THE BIBLIOGRAPHY — PRICE $1.50.

250 YEARS OF PAPERMAKING IN AMERICA

(VERY LIMITED QUANTITY) $3.50 each

LOCKWOOD TRADE JOURNAL CO., Inc.

(PUBLISHERS OF PAPER TRADE JOURNAL)

15 WEST 47th STREET NEW YORK, N. Y.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending January 21, 1942

	High	Low	Last
A. P. W.	1⅜	1½	1½
Armstrong Cork Co.	26¼	24⅞	25⅛
Celotex Corp.	8	7¾	8
Celotex Corp., pf.	....	....	....
Certain-Teed Products Corp.	2	2	2
Certain-Teed Products Corp., pf.	28	26¾	27½
Champion Paper & Fibre Co.	16¾	16¾	16¾
Champion Paper & Fibre Co., pf.	99	97⅞	97⅞
Congoleum-Nairn Co.	16	15¼	15¼
Container Corp. of America	13½	12⅞	12⅞
Continental-Diamond Fibre Co.	8¼	7¾	7¾
Crown-Zellerbach Co.	11⅞	11¼	11¼
Crown-Zellerbach Co., pf.	88½	88	88
Flintkote Co.	9⅞	9½	9⅝
Robert Gair	2⅛	1¾	2
Robert Gair, pf.	....	....	....
International Paper Co.	15½	14	14¼
International Paper Co., pf.	59¾	58½	58½
Johns-Manville Corp.	59½	58½	58½
Johns-Manville Corp., pf.	124	122¾	123
Kimberly Clark Corp.	28	28	28
MacAndrews & Forbes	23	22½	22½
MacAndrews & Forbes, pf.	130	130	130
Masonite Corp.	25¾	25	25
Mead Corp.	6⅞	6½	6½
Mead Corp., pf.	70	70	70
Paraffine Companies, Inc.	24	24	24
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	11½	10¾	10¾
Rayonier, Inc., pf.	25⅝	25	25⅛
Ruberoid Co.	17⅞	16½	16½
Scott Paper Co.	....	....	....
Scott Paper Co., pf.	107	107	107
Sutherland Paper Co.	18⅞	18¼	18¼
Union Bag & Paper Corp.	9⅛	8½	9
United Paperboard Co.	3¾	3⅝	3½
U. S. Gypsum Co.	47¼	43⅞	44½
U. S. Gypsum Co., pf.	170	170	170
West Virginia Pulp & Paper Co.	17¼	17	17¼

New York Curb Exchange

High, Low and Last for Week Ending January 21, 1942

	High	Low	Last
American Box Board Co.	3⅝	3⅜	3⅜
Brown Co., pf.	....	....	....
Great Northern Paper Co.	....	....	....
Hummel-Ross Fibre Corp.	4¾	4¾	4¾
National Container Corp.	10	10	10
St. Regis Paper Co.	2¼	2	2¼
St. Regis Paper Co., pf.	120	117½	117½
Taggart Corp.	3	2¾	3

Lee Paper Mills Have Good Year

The year just closed was a very satisfactory one for the town of Lee, Mass.

The Hurlbut Paper Company at South Lee was exceptionally busy, having a marked increase in sales volume over 1940. Continuing the improvement program established three years ago, changes in the mill resulted in increased production and facilitated better technical control in the manufacture of high-grade technical papers in which the plant specializes. The company had a considerable volume of defense orders and expects to maintain full production in 1942.

The Smith Paper Inc., manufacturing cigarette, carbon and condenser papers, the "bread and butter" for the town, became American-owned last summer through a $40,000,000 loan approved by the RFC, which made possible the purchase of the shares of the mills from the British-American Company, Ltd.

Lake Sulphite Sale Deferred

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 19, 1942—Court approval of the deal whereby Brompton Pulp and Paper Company would purchase the assets of the Lake Sulphite Pulp Company from the liquidator has been held up until January 22. The application was originally heard by the Ontario Supreme Court on January 12, but was opposed by the common shareholders, represented by R. L. Kellock, K.C., who sought a 60-day adjournment. The shareholders' protective committee, through Mr. Kellock, sought an opportunity to make another offer before the court sanctioned the Brompton deal.

This opportunity is given the shareholders under the ruling of Mr. Justice McKay of the Ontario Supreme Court. G. S. Currie, liquidator, has called a meeting at Toronto for January 22 for the purpose of considering any proposal for re-organization of or purchase of the assets of the company, which may be submitted to or develop at the meeting. The letter calling the meeting states that the application made to the court for sanctioning the sale may be adjourned if a proposal acceptable to the shareholders and which appears satisfactory to the court results from the meeting.

Under the Brompton offer, the shareholders would not receive anything and secured creditors would only get about 25% of their claims and unsecured creditors 10%.

Paper Men Elected by Banks

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 19, 1942—Bank elections of the last week mentioned the names of numerous paper mill executives. The National Manufacturers Bank, Neenah, Wis., completing sixty years of business, reelected as vice-presidents S. F. Shattuck, vice-president of Kimberly-Clark Corporation, and A. C. Gilbert, president of the Gilbert Paper Company.

John N. Bergstrom, president of the Bergstrom Paper Company, was reelected vice-president of the First National Bank, Neenah, Wis. Among those reelected to the board of directors in addition were: F. J. Sensenbrenner, president, and Ernst Mahler, vice-president, of Kimberly-Clark Corporation; D. K. Brown, president of the Neenah Paper Company, and C. B. Clark, president of the Riverside Paper Corporation, Appleton, Wis.

Mr. Clark was also reelected vice-president of the First National Bank, Appleton, Wis. Those reelected directors include: Charles S. Boyd, president of the Appleton Coated Paper Company; W. E. Buchanan, president of Appleton Wire Works; R. H. Purdy, general manager of the Tuttle Press Company; F. J. Sensenbrenner, president of Kimberly-Clark Corporation; K. E. Stansbury, president of Thilmany Pulp and Paper Company, Kaukauna Wis., and William C. Wing.

Watervliet Has Successful Year

The Watervliet Paper Company of Watervliet, Mich. has completed one of the most successful years in its history. Its pay rolls have been the largest ever and its production exceeded all past records.

In the last six months 47 per cent of the mill's product went directly to the government or for food products which were shipped to England under the lend-lease bill.

Obituary

Michael Mazer

Michael Mazer, 62, of 87 Hillcrest avenue, Longmeadow, Mass. for many years a leading wholesale paper merchant in Springfield, Mass., died Sunday in Springfield Hospital after a short illness. Funeral services were held at the family residence. Burial was in Beth El Cemetery. Rabbi Samuel Price officiated.

Mr. Mazer had been prominently identified with the wholesale paper business in Springfield for 32 years. He established the Standard Paper and Merchandise Company in Market street many years ago and until recently maintained an active interest in the business.

He was a member of the B'nai B'rith, Congregation Beth El and Brigham Lodge of Masons.

Besides his wife, Esther, he leaves two sons, Dr. Mendel Mazer and Moses K. Mazer, both of this city; one daughter, Mrs. Hannah Cohen of this city, and two brothers, Abraham of New York City and Meyer of Moodus, Conn.

Paul A. Benning

Paul A. Benning, 44, of 27 Vassar drive, Dayton, Ohio, died January 4 at St. Elizabeth hospital after one week's illness. He came to Dayton 11 years ago from New Orleans to manage Letellier Phillips, Inc., paper products firm.

He was a member of Post 5, American Legion. Mr. Benning served 18 months overseas and was decorated for bravery by General Douglas MacArthur. He was also a member of the Walnut Grove Country club and took an active part in civic and social affairs of the city.

Surviving are his wife, Ann Woodruff Benning; two sons, Paul and Robert, and a sister, Mrs. Ernest D. Marques of San Diego, Calif.

OPA Amends Price Schedules

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 21, 1942 — An amendment to Price Schedule No. 30 on waste paper, abolishing "Old Kraft Corrugated Containers" as a separate grade in the schedule, was announced today by Leon Henderson, Administrator of the Office of Price Administration.

The amendment redefines "Old Corrugated Containers" as used containers of kraft or any other paper substance. The price for the redefined grade is established at $16.50 per short ton, f.o.b., point of shipment, which is the same price used for the same designation in the original schedule.

Mr. Henderson said the amendment, designated as No. 4, was made because used containers of 90%-100% kraft are becoming increasingly scarce, due to the growing use of materials other than kraft as corrugating mediums and liners in corrugated containers, and because there has been a considerable upgrading of containers of less than 90% kraft to "Old Kraft Corrugated Containers" as this grade was defined in Schedule No. 30.

The amendment is effective January 19, 1942.

"NON-USERS ARE THE LOSERS"

PROFIT PRODUCERS

TENAX FELTS

"SET" for SERVICE!

These are strenuous days in paper mills, with heavy emphasis on production schedules. TENAX FELTS are doing their part, and it has become a most important part, — by producing perfect paper in record time and record quantity — — "TENAX" might well be the password at the Manufacturers Convention.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY
NEWFANE, N. Y.—U.S.A.

CONSTRUCTION NEWS

Tacoma, Wash.—The St. Regis Paper Company, Kraft Pulp Division, will make extensions in power house at sulphate pulp mill on the Tide Flats, City Waterway, with installation of new boiler unit and auxiliary equipment. Work will be carried out at once. Award for boiler installation has been made to C. C. Moore & Company, Smith Tower Building, Seattle, Wash. No estimate of cost announced. Marshall & Barr, Exchange Building, Seattle, are consulting engineers.

Lowell, Mass.—The T. J. Cleghorn Company, Inc., 95 Bridge street, recently organized, plans operation of local plant for the manufacture of paper boxes and containers, and will provide equipment and facilities for large output. Thomas J. Cleghorn is president and treasurer.

Springfield, Mass.—The United States Envelope Company, 21 Cypress street, manufacturer of commercial and other envelopes, has awarded contract to E. W. Larkin Company, 1242 Main street, Springfield, or remodeling and improving part of its multistory office building. No estimate of cost announced. Work will be placed under way at once.

Belleville, N. J.—The American Tag Company, 113 Sussex avenue, Newark, N. J., manufacturer of shipping tags, labels and other paper specialties, is completing modernization and improvements in one and two-story industrial building at Rutgers and Courtland streets, Belleville, purchased a number of months ago, totaling about 25,000 square feet of floor space, and will develop as its main plant in this district. Removal has begun from Newark plant, which will be located in new building in the future, with the installation of additional equipment for considerable increased capacity. The factory formerly was occupied by the Overman Cushion Tire Company, as previously noted in these columns, and will represent an investment in excess of $50,000 for the new converting works. Main offices of company are at 6155 South State street, Chicago, Ill.

Chicago, Ill.—The Noble Label and Box Company, Inc., recently organized with capital of $25,000, to manufacture paper boxes and containers, and other paper goods, will take over and succeed to the Noble Label & Box Company Not Inc., with local converting plant at 761 East Pershing road. W. W. Noble and J. F. Philippi head the new organization.

Detroit, Mich.—The American Asbestos Products Company, 5701 Davison avenue, manufacturer of insulation products, etc., has closed bids on general contract for expansion in plant, previously referred to in these columns, and will place award at early date. Work will consist of a new one-story building on adjoining site, and one-story addition to an existing structure. Cost is reported over $50,000, with equipment. Lyndon & Smith, 13700 Woodward avenue, Detroit, are architects.

Alpena, Mich.—The Fletcher Paper Company, manufacturer of paper products for bag manufacture, sulphite wrapping stocks, etc., has resumed operations at local mill, following a suspension for more than a year past, and will develop a full production schedule in near future. At the present time employment will be given to about 75 persons.

Batavia, N. Y.—The E. N. Rowell Company, Inc., Jefferson avenue, manufacturer of stiff paper boxes for the drug, chemical and allied trades, is operating on a capacity schedule, giving employment to about 400 persons in different departments. It is expected to hold to present basis for an indefinite period. The company distributed its annual holiday bonus in December, totaling five weeks' pay for all workers with the company three months or longer.

Appleton, Wis.—The Fox River Paper Corporation, manufacturer of bond, ledger and other writing paper stocks, is continuing improvement program at mill, and has authorized the installation of a new elevator in main four-story mill unit. The shaft will be constructed by C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., and the elevator will be furnished by the A. Kieckhefer Elevator Company, 1100 West St. Paul avenue, Milwaukee, Wis. Work will be placed in progress at once. Company has begun roofing new one-story addition, 41 x 50 feet, on Oneida street, to be used for storage service, previously referred to in these columns, and will have the structure ready for service at early date. The Koepke Construction Company, Appleton, has the erection contract.

Los Angeles, Calif.—The West Coast Paperboard Mills, Inc., 2615 East 12th street, has secured a building permit and is beginning construction of proposed new mill at 6021 South Eastern avenue, to be equipped for large production of paper board products. It will consist of a main one-story structure, 61 x 277 feet, instead of a smaller sized building, as previously mentioned in these columns. A list of machinery and equipment to be installed is being arranged. New plant is reported to cost about $100,000, with equipment, and is scheduled to be ready for service in the spring. The J. O. Oltman Company, 810 East Eighteenth street, has the general erection contract. M. J. Gabrielsen, 6362 Hollywood boulevard, Los Angeles, is engineer for the company, which was organized recently.

Kalamazoo, Mich.—The Michigan Paper Stock Company, Inc., King Highway, has been chartered with capital of $100,000 by William Slavin, 619 Edgemoor avenue, Kalamazoo, and associates, to deal in paper products of various kinds. New company will take over and expand the organization of same name heretofore operated by William and Leon Slavin. New company will make its headquarters at the former mill of the Detroit Paper Products Corporation, recently purchased by the same interests, and which will be operated under the name of the Western Board and Paper Company, chartered recently with capital of $500,000, as noted in these columns. Work on modernizing and improving the mill is now nearing completion, including the installation of equipment for the manufacture of box board products, and operations are expected to begin in near future. Plant will have a rated output of about 135

tons per day, and will give employment to approximately 165 persons. The improvement program and new machinery are stated to represent an investment of close to $125,000.

Drummondville, Que.—The Eastern Paper Box Company, Ltd., manufacturer of paper boxes and containers, has plans under way for new addition to plant for increased capacity. It will be one-story, reported to cost close to $35,000, including equipment.

La Tuque, Que.—The Brown Corporation, Ltd., 71 St. Peter street, Quebec, Que., manufacturer of kraft and kindred paper stocks, has plans under way for new one and multi-story addition to mill to provide for considerable increased output. Cost is reported over $600,000, with machinery. It is proposed to begin work soon. R. A. Rankin & Co., 1420 Sherbrooke Street, West, Montreal Que., are engineers.

New Companies, Etc.

New York, N. Y.—Buckley-Dunton Corporation has been incorporated with capital of $20,000, by officials of Buckley, Dunton & Company, 295 Madison avenue, New York, paper and pulp products. It is understood that new company will be operated as an affiliated interest.

Waltham, Mass.—The Moody Stationery Company, Inc., 377 Moody street, has been chartered with capital of 500 shares of stock, no par value, to deal in writing and other paper stocks, etc. Edward S. Churnick, address noted, is president and treasurer.

Mount Vernon, Ohio—The Shellmar Products Company, Inc., Mount Vernon, manufacturer of cellophane products, a Delaware corporation, has recently filed notice of increase in capitalization from $1,000,000 to $2,000,000, for general expansion.

Government Paper Bids

WASHINGTON, D. C., January 21, 1942—Government Printing Office has received the following bids for 591,000 pounds of 38 x 48½ white mimeograph paper: Whitaker Paper Company, 6.94 cents; Cauthorne Paper Company, 8.36 cents; and Marquette Paper Company, 7.3 and 7.8 cents.

For 1,800,000 pounds of 8 x 10½ ground wood mimeograph paper: Barton, Duer & Koch Paper Company, 7.95 cents; and Paper Corp. of U. S., 7.5, 7.9, 7.75, and 8.15 cents.

For 167,500 sheets of 22⅛ x 34½ white cloth lined cover paper: Stanford Paper Company, $109.51 per M sheets; Mudge Paper Company, $109.51; Barton Duer & Koch Paper Company, $109.51; Whitaker Paper Company, $109.51.

For 591,000 pounds of 38 x 48½ mimeograph paper: Knowlton Bros., Inc., 10.12 cents; R. P. Andrews Paper Company, 11 cents; Cauthorne Paper Company, 11 cents; Whitaker Paper Company, 14.5 cents; and Mudge Paper Company, 12.94 cents.

Paper Shipment Index Rises

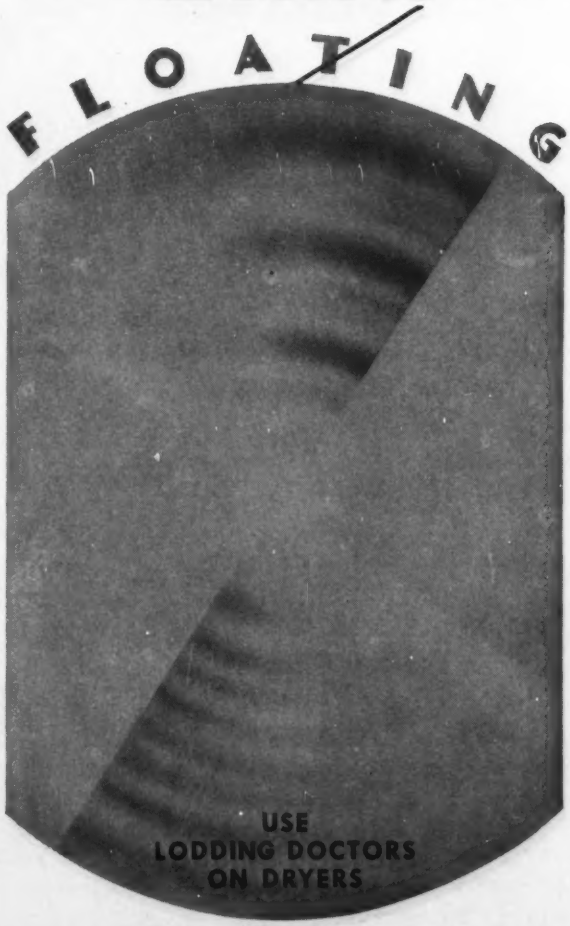
WASHINGTON, D. C., January 21, 1942—November index of the value of paper mill shipments was 202 compared with 194 in October and 134 in November 1940 taking January 1939 at 100 according to the monthly industry survey of the Department of Commerce.

Index of the value of paper mill inventories in November taking 1939 at 100 was 130.8 compared with 128.5 in October and 117.6 in November 1940.

Blades Changed
Like Opening a Drawer

The patented "Floating Blade Principle" of the Lodding Doctor eliminates all bolting, clamping, or otherwise permanently mounting the blade, thus it does not actually become an integral part of the holder. Floating makes the blade a free, independent unit, safely secured in the holder in a simple manner which permits it to be slid out endwise in a few minutes' time. . . . May we send one of our engineers, or a copy of our new bulletin describing the Perforated Blade Doctor for dry positions? Write either the Lodding Engineering Corporation, Worcester, Massachusetts, or the W. E. Greene Corporation, Woolworth Building, New York.

LODDING
FOR EVERY *Doctors* POSITION
FLOATING



UNITED PIGMENTS

Pure Titanium Dioxide

UNITANE-O

A brilliantly WHITE, pure, fine titanium dioxide possessing excellent . . .

- **OPACITY**
- **BRIGHTNESS**
- **DISPERSION**

Suitable for ALL types of paper ranging from thin printing papers and waxing tissues to coated book and magazine stocks.

UNITANE O—110 was especially developed for paper pigmentation. Its excellent dispersion in water promotes good retention and excellent sheet formation. As a component of the beater furnish, it produces *whiter* sheets of *great brilliance*, and superior printing qualities.

SAMPLES of UNITANE O-110 will be sent promptly upon request.

UNITED COLORS & PIGMENTS

UNITED COLOR AND PIGMENT CO.

DIVISION OF INTERCHEMICAL CORPORATION

NEWARK, NEW JERSEY

SALES OFFICES IN PRINCIPAL CITIES

NEWSPRINT DEMAND UPWARD

(Continued from page 9)

A feature of the exhibition will be a special exhibit of photographs and products showing the varied war materials being produced by the pulp and paper industry under the "bits and pieces" program developed by the association's Wartime Machine Shop Board. E. W. Harvey, co-ordinator, will give an account of this wartime activity before the Technical Section.

At the association's annual luncheon on the closing day F. G. Robinson, president of the association, will present his report on behalf of the Executive Committee.

Pulpwood Put on Export Control

The Trade and Commerce Department has announced that as a result of serious local shortages certain pulpwood products have been placed on the list of articles for which an export permit must be obtained. After February 1, permits will be required covering all shipments from Canada of pulpwood of spruce, balsam, hemlock, jackpine or poplar, either in the form of cordwood or logs. Applications will be referred by the Department to the Timber Controller.

Trade McKinnon Explains Order

Explaining the order Trade Minister McKinnon said that as a consequence of the shortage prices have been rising, and United States mills have been making additional purchases which have caused serious local shortages in certain districts. He added, however: "It is not proposed in any way to discriminate against established United States interests who have been accustomed to derive their supplies of pulpwood from Canada. Insofar as it is physically possible, shipments of Canadian pulpwood to the United States will continue to bear the same relationship to the total available Canadian cut as in recent years. Furthermore, the Timber Controller has agreed that no action will be taken to interfere with bona fide contracts concluded prior to January 15, 1942. In other words, it is the intention to administer the application of export control to pulpwood in such a manner as to avoid any undue disclocation of normal supplies both for Canadian and United States mills."

Waste Materials Merchants to Meet

The Philadelphia Waste Merchants Association will hold its annual banquet at Hotel Benjamin Franklin, 9th and Chestnut streets, on Tuesday, February 10 at 7:30 o'clock. The banquet committee with John Beitchman of A. Beitchman & Son, chairman, consists of Morris Mossman of Mossman Brothers, Benjamin French of Castle & Overton, Inc., James Sullivan, of Pioneer Paper Stock Company, and John Bailey of Penn Paper Stock Company. Chairman Beitchman and his committee are actively at work on a program of entertainment and a menu that will far surpass any in the history of the association. To date reservations have come in that far exceed the expectations of the committee. The cost per person is $6 and will include a de luxe dinner with a floor show and unusual door prizes. Reservations should be sent to Mr. Beitchman, 234 Queen street, Philadelphia, Pa.

To Use TAPPI Formula

The Bureau of Customs has decided that the TAPPI formula for testing paper shall be used to determine whether imported newsprint is duty free as standard newsprint, or subject to duty as being over 35 pound basis weight. This decision concludes a long series of conferences in which an effort was made to reach some basis for determining the durability of paper, when the weight element alone was in question. It had been claimed that Canadian paper was subject to so much absorption of moisture that paper manufactured to be within the definition of standard newsprint would weigh over the 35 pound maximum when tested at border ports. The Bureau ruling is that the weight shall be determined by the TAPPI formula under which it is tested after being conditioned in atmosphere mainted at 50 percent relative humidity and 23 degrees centigrade. The Bureau finds that this method determines the weight of the paper under normal conditions. The action of the bureau is in accordance with the proposal by the Import Committee of the American Paper Industry that the Government use this nationally recognized testing formula as the basis for its determination of weights of papers.

G. F. Chambers Appointed

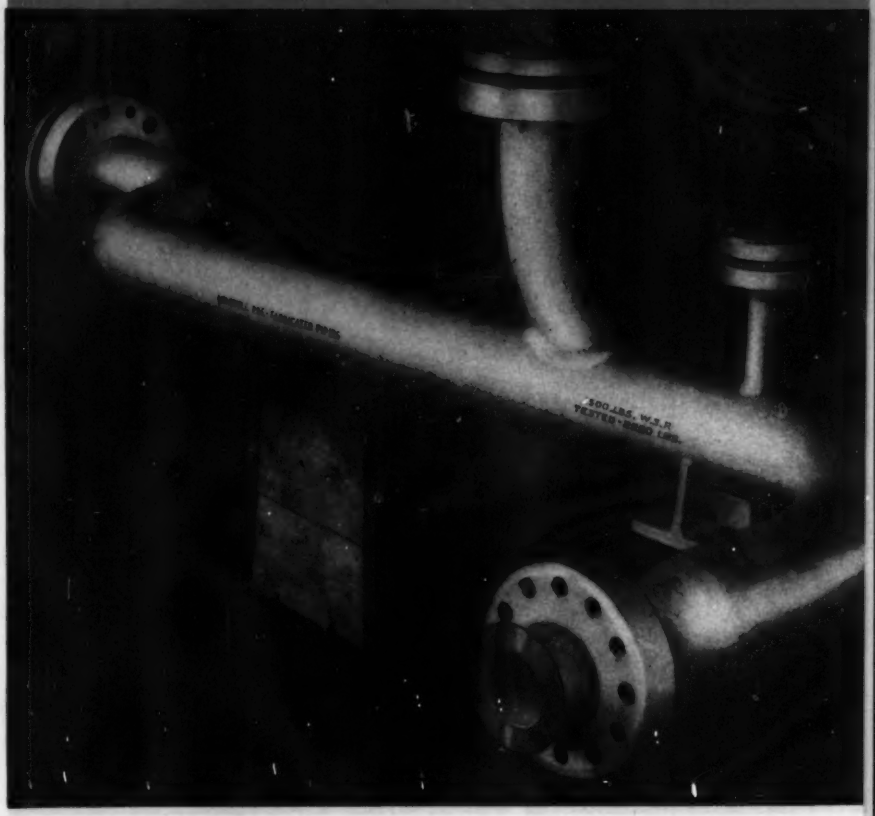
BOSTON, Mass., January 19, 1942 —With Gurth F. Chambers, general sales manager for Lever Brothers Company, Cambridge, Mass., appointed as the director of the newly organized salvage division of the Massachusetts Committee on Public Safety, a statewide drive to salvage waste paper, among other materials, will be undertaken soon. J. Wells Farley is executive director.

Governor Leverett Saltonstall asked Mr. Farley to set up a salvage committee under the direction of an energetic and resourceful director to be named by Mr. Farley.

The Massachusetts drive was suggested by Paul C. Cabot who is directing a salvaging program for the Office of Production Management. Eight States have already undertaken such campaigns and similar campaigns are planned by 20 other States.

The burning of waste paper must be stopped immediately, it was declared by Leon Henderson, price administrator, in calling on New England Mayors and selectmen to cooperate with the Bureau of Industrial Conservation in the collection of such material.

HOW TO *Sub-Contract* YOUR PIPING PROBLEMS!



WHEN defense orders necessitate added power piping in your plant, take this short-cut through the special engineering and prefabrication problems that precede installation. "Give the plans to Grinnell", and you'll "sub-contract" all the troubles of interpreting super-pressure steam requirements into super-power piping.

Grinnell engineers are power specialists, qualified by long experience to interpret even the most complex power problems into speedily-erected, underwriter-approved piping systems. Grinnell plants, strategically located to serve defense industries, are equipped with every last facility to prefabricate these systems.

Grinnell is helping leading manufacturers, utilities and process plants to meet defense needs for added power. Write for Data Book, "Grinnell Prefabricated Piping". Grinnell Company, Inc., Executive Offices, Providence, Rhode Island. Branch Offices in principal cities of the United States and Canada.

GRINNELL

WHENEVER PIPING IS INVOLVED

PAPER
TRADE JOURNAL
Title Reg U. S. Pat. Off.
Henry J. Berger
EDITOR
Vol. 114 January 22, 1942 No. 4

COMING EVENTS IN PAPER INDUSTRY

AMERICAN PAPER AND PULP ASSOCIATION, Sixty-fifth Annual Convention and meeting, Waldorf-Astoria Hotel, New York, February 16-20.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Commodore Hotel, New York, February 16-19.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 17.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February 16-19.

THE NEW YORK ASSOCIATION OF DEALERS IN PAPER MILLS' SUPPLIES, Annual Banquet, Commodore Hotel, New York, Tuesday, February 17.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel. Holyoke. Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton. Wis

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich

EMERGENCY TAXES

The present revenue act was never adequate to raise the income required. It was an ill-conceived piece of legislation. It had scarcely been enacted before recommendation was made for additional taxes. That need has been very greatly increased under the heavily increased appropriations asked by the President. To finance the enormous war expenditures now planned, three expediencies seem necessary: the national debt must be substantially increased, higher taxes on corporations in some form will likely be resorted to, and a Federal sales tax or a war tax, must inevitably be adopted.

In considering the merits of a Federal sales tax to meet the emergency, Godfrey N. Nelson, tax expert, in the January 18 issue of *The New York Times,* points out that, "The general sales tax has been successfully employed in European countries for several decades in and without emergencies. Not since the Civil War, however, has this form of taxation been used by the Federal Government, and even then inconspicuously. A general sales tax was last under serious consideration in 1920 and 1921 as a substitute levy for the excess profits tax, when it was defeated in the fiscal committees of both the House and the Senate upon strictly political lines and condemned upon the claim that it laid an unjust burden upon the poor. Nevertheless, like the excess profits tax, also regarded as an emergency measure, the general sales tax has great potential possibilities as a revenue producer. While both of these levies are undesirable as peace-time measures, an acute emergency like the present one could as readily justify one as the other. At least the general sales tax would present but a fraction of the administrative complexities encountered in the tax on excess profits."

In commenting on the sales tax as a revenue producer, Mr. Nelson, said in part that, "Identifying this form of sales tax, the National Industrial Conference Board has said: 'The characteristic of a general sales or turnover tax is that it attaches, directly or indirectly, to all commodity and property sales in a prescribed general class or classes, such as sales at retail, sales at wholesale, manufacturers' sales, and so forth.' It may be extended to cover sales of real estate and charges for professional and other services, being then a general turnover tax. When levied on every transaction, the general sales tax may be paid one or many times before a manufactured article reaches its final stage and is sold to the consumer. Each process of manufacture and sale calls for payment of the tax. Being superimposed on each process and sale, the pyramiding of the tax in the course of successive sales is unavoidable. And thus the tax discriminates against concerns performing only single-processes, each process being subject to tax, as compared with those performing multiple-process of manufacture."

In discussing some of the inequalities of this form of levy Mr. Nelson states in part that, "Thus, one of the serious inequalities of the general sales tax is that it favors the concern which performs the most processes in the course of manufacturing and it discriminates against concerns performing a lesser number of processes. However, the discrimination is not proportionate to the number of processes performed. It will be noted that the aggregate amount of turnover taxes paid on manufactures passing through several processes, on each of which the tax is paid, is not the number of processes times the tax paid by the multiple-process manufacturer. Since the tax is only paid on the amount of sale value of the incompleted article, the aggregate taxes paid on the completed article, produced by six processors, may be less than two and a half times the tax paid on one concern performing all the processes."

In discussing the adjustment or rate, Mr. Nelson explains that, "One State using a turnover tax has attempted to overcome this discrimination by adjusting the rate downward among single-process producers so as to apportion among them the aggregate amount of tax paid by the multiple-process producer. It is questionable, however, that a differential of 1.34% of the sale price to the consumer (2.34% less 1%) would be sufficiently sizable to disturb competition or to stimulate consolidation of single-process producers. Despite everything that may be said against the general sales tax, it must be recognized that this form of taxation has been employed with moderate success by most of the States and by some municipalities. In point of adaptability and geographical uniformity of taxation, the use of the gen-

eral sales tax rightly belongs to the Federal Government rather than to the States. Its employment by the States and their subdivisions has unquestionably led to confusion in interstate trade relationships, not to mention local trade discriminations. It has been estimated that nearly one-third of all gross business done by corporations results in no net taxable income. Although contrary to the principle of 'ability to pay', it would seem only just that whether or not profitable, such sales should be subjected to some tax in a period of extreme emergency, except, perhaps, where the product of such unprofitable industry falls within the selective excise taxes."

In conclusion, Mr. Nelson explains that, "Sales taxes have the advantage over other forms of levies, after the principle has been established, of being easily adjusted as to rates to meet revenue requirements; nor is the revenue therefrom subject to the wide fluctuations of taxes imposed on income. Unquestionably the general sales or turnover tax offers a tremendous opportunity for the raising of Federal revenue as an emergency measure for the duration of the war."

Booth Company Expands

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., January 19, 1942—J. R. Booth, Ltd., manufacturers of fine papers, newsprint and specialties, has approved plans for a new addition to the mill at Ottawa, costing over $150,000 with equipment.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
December 6	106.8	December 7	85.3
December 13	105.7	December 14	88.3
December 20	107.0	December 21	88.5
December 27 (Holiday Week)	80.0	December 28	61.4
January 3, 1942	102.8	January 4, 1941	80.8
January 10, 1942 (Prelim)	*103.2*	January 11, 1941	87.1

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	89.1	84.7	82.3	84.3	90.0	92.1	85.3
1941	85.6	89.7	92.2	96.0	98.7	99.5	94.8

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940	85.1	81.5	85.5	84.9	80.9	85.6
1941	101.8	99.6	105.1	106.0	*100.6*	*97.4*

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year Average	69.9	80.4	79.8	71.5	83.4	85.6	*97.4*

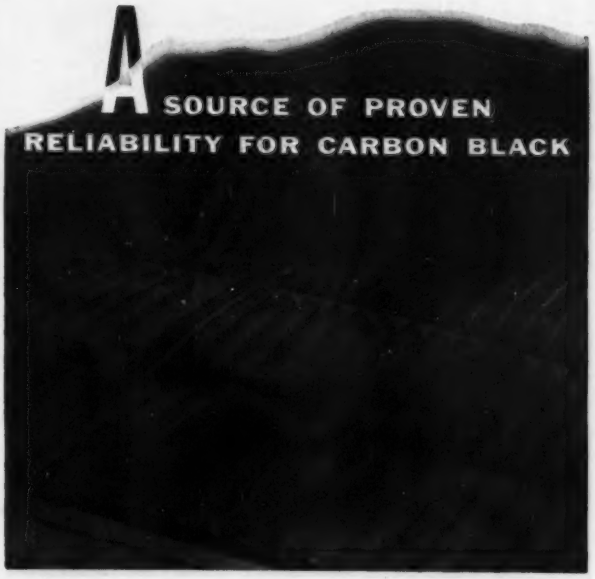
* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	75	81	82	83	84	88	86	94	94	99	98	*93*	*88*

Week ending Dec. 6, 1941—102
Week ending Dec. 13, 1941—101
Week ending Dec. 20, 1941—101
Week ending Dec. 27, 1941— 76
Week ending Jan. 3, 1942— 86
Week ending Jan. 10, 1942—*101*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.



Continental Carbon Company is comparatively young as a manufacturer of carbon black. But its products are of such consistently high quality that they are in constantly increasing demand among the largest and most critical users in the country.

Here are a few reasons for the company's high reputation. Continental's plant is one of the largest and most modern in the world. Equipment for producing and handling blacks is of the finest obtainable. Laboratory facilities are up-to-the-minute and extensive, and they are being used by a carefully selected staff of technicians. Testing, experimentation, research, and technical cooperation with customers have put Continental's name at the top of the list as a reliable source of supply for carbon black.

Your requests for Continental's blacks for paper production, as described below, will receive our prompt attention. Write today.

2 TYPES TO CHOOSE FROM

UNCOMPRESSED BLACK

Continental Uncompressed Black meets the most stringent requirements for ease of dispersion and intensity of coloring. Accepted throughout the paper industry, you can depend upon it to be of the highest quality—and consistently uniform.

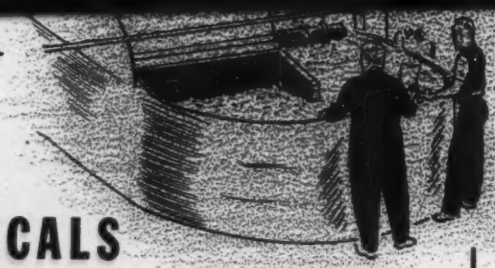
CONTINENTAL P

This special new Continental Black offers advantages in cleanliness, ease of handling, and because of its extra soft structure, assures good dispersion and retention. It is lower in cost and is being used with satisfactory results.

Continental CARBON BLACK

CONTINENTAL CARBON COMPANY, 295 Madison Ave., New York, N. Y.
Akron Sales Office: Peoples Bank Bldg., Akron, Ohio • Plant: Sunray, Texas
SALES REPRESENTATIVES: Ernest Jacoby & Co., Boston, Mass. • Marshall Dill, Los Angeles and San Francisco, Cal.

QUALITY PAPER CHEMICALS *Plus* SERVICE



TWO-FOLD SERVICE. A manufacturer of pulp, paper or paperboard is justified in expecting from his supplier of paper chemicals not only so many tons of supplies, but experienced counsel, whenever needed, on how to secure the most efficient use of these materials in relation to his own mill methods and equipment.

Cyanamid is prepared to meet this requirement by maintaining a corps of technical service men who have had practical experience in the manufacture of paper and who have specialized in the application of Cyanamid products. The experience of the personnel of the Paper Chemical Service Department is broad, thorough and practical. From this group of men, the paper mill operator receives maximum effective assistance with his chemical problems because of their understanding of his manufacturing details.

These men are so stationed that their services are available to the various paper mills with minimum delay.

New developments in paper chemicals and their uses for making new and better paper products is another important phase of Cyanamid service, as a supplier of quality paper chemicals. The progressive, sales-minded mill operator is not only concerned with properly utilizing his "standard" paper chemicals to maintain uniform and high quality production. He is also likely to be vitally concerned with "keeping up with the times" . . . knowing about the new advances in materials and methods and how to apply them to his business.

LOOKING AHEAD. Here again, Cyanamid is in an outstanding position to provide an important extra service to customers. By maintaining a research organization working solely on the development and application of chemicals used in the manufacture of paper products, Cyanamid is able to post every interested paper-maker on the steady progress of improvements in staple chemicals and the development of new and useful specialities. This work is carried on in what is acknowledged to be one of the finest equipped laboratories in the country, and under the direction of men who have had actual experience in the manufacture of paper. Field men and research men work closely together to co-ordinate better their respective talents toward attainment of a most effective service.

This organization is ready to serve you, Mr. Paper-Maker. Just tell the nearest Cyanamid representative about your problem and he will see that these men go to work for you.

1. ELECTRON MICROSCOPE—The first Electron Microscope in commercial use is now an important part of Cyanamid's modern laboratory equipment. It is capable of magnifications up to 30,000 diameters, and reveals many important facts about various paper chemicals.

2. MOISTURE EXPANSIVITY TESTER—This apparatus is used by Cyanamid Laboratory technicians for the accurate measuring of expansion and contraction of paper under varying conditions of atmospheric humidity.

3. LABORATORY—Below is shown the large modern structure which houses Cyanamid's extensive and ever growing research activities.

WAX SIZES • COATING MATERIALS
ROSIN SIZES • SYNTHETIC RESINS
CASEIN • ALUM • CORN STARCH
TAPIOCA FLOUR • SULPHONATED
OILS • FILLERS • DEFOAMERS
AEROSOL* WETTING AGENTS
and OTHER PAPER CHEMICALS

*Reg. U. S. Pat. Off.

American Cyanamid & Chemical Corporation

A UNIT OF AMERICAN CYANAMID COMPANY · 30 ROCKEFELLER PLAZA · NEW YORK, N. Y.

DISTRICT OFFICES: 89 Broad St., Boston, Mass.; 401 N. Broad St., Philadelphia, Pa.; Russell & Bayard Sts., Baltimore, Md.; 3333 Wilkinson Blvd., Charlotte, N. C.; 850 Leader Bldg., Cleveland, O.; 20 N. Wacker Drive, Chicago, Ill.; Miller Road, Kalamazoo, Mich.; 931 Fisher Bldg., Detroit, Mich.; 900 Shell Bldg., St. Louis, Mo.; Azusa, Calif.

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Microscopy Committee Report—1941*

By Fred W. Bentzen,[1] Chairman

The Committee on Microscopy of the Technical Association of the Pulp and Paper Industry did not undertake or sponsor any major project during 1941 because of the proposed convention of microscopists in the industry, as referred to in our annual report for 1940. This proposal has aroused considerable interest, and, therefore, the TAPPI Executive Committee has given its approval for holding such a convention next summer. In view of this, preliminary work has been started so that tentative arrangements can be made during the Annual Meeting of TAPPI in February, 1942.

The only work of any importance has been the rewriting of the proposed revision of TAPPI Standard T 401 m to comply with suggestions of the Standards Committee. The committee also, accepted the proposed TAPPI Suggested Method T 10 sm. Constructive criticism of this proposed method has been received. Only by such interest can a method be expanded and improved.

Publications on Microscopy in 1941

Cross sectioning. The construction and method of operation of a new type of cross-sectioning microtome have been described by Mennerich *(1)*.

Fibers. Observations pertaining to the structural details of fibers that have received various chemical treatments have been published by Hock, Ramsay, and Harris *(2)*. Phenomena which appeared to be new have been described in detail, together with the description of experiments of earlier invstigators. A study of the swelling of jute fibers in various liquids, such as water, acids, alkali, and certain commonly used emulsifying agents has been made by Macmillan and Sen *(3)*. Jayme and Harders-Steinhauser *(4)* in an article on straw as raw material for pulps, make reference to the fact that the criteria hitherto used for the microscopic identification of straw fibers in pulps no longer suffice when other annual plants, such as cornstalks, potato stalks, sunflowers, etc., are used in admixture. Hock, Ramsay, and Harris *(5)* have obtained information concerning the fine details of the structure of wool fibers and especially of their constituent scale and cortical cells.

Fiber Structure. Following a short review of recent concepts on the submicroscopical structure of the cellulose fiber, Rŭska *(6)* discusses the possibilities offered by the use of the electron microscope and demonstrates thereby a number of pictures. Dadswell and Ellis *(7)* in an article on the fiber-bonding materials and their importance in pulping states "that, in addition to lignin, a nonlignin bonding material must be removed before wood fibers will separate and that this can be removed or modified prior to delignification." Runkel *(8)* has come to the conclusion that, among the morphological properties related to sheet formation and sheet structure, the decisive factor is not the fiber length but the cross section—particularly the thickness of the cell wall.

Fiber Testing. A method employing fiber surface per gram of fiber is suggested for measuring fiber fineness by Sullivan and Hertel *(9)*. Fox and Finch *(10)* have published a simplified method for the determination of refractive indices of textile fibers using a photometric match of Becke line intensitiies emanating from the difference between the maximum and the minimum refractive indices of the fiber and the index of the mounting fluid. A comparison of five methods of measuring fineness of cotton fibers has been made by Grimes *(11)*. Seborg and Simmonds *(12)* have developed an apparatus and technique for measuring the stiffness in bending of a single fiber.

Fiber Identification. Armitage *(13)* has published a number of photomicrographs illustrating the difference in microscopical appearance of straw and esparto fibers as an aid in diagnosing their presence in paper. An article on the practical application of the method by Schwertassek for the quantitative separation of regenerated and native cellulose in the cotton spinning and weaving industry is published by Buschmann *(14)*. Tabulated data for a preliminary analysis of textile fibers, including natural and synthetic fibers and simple methods for their identification, has been given by Preston *(15)*. Williams and Tonn *(16)* give references to a number of standard biochemical color reactions which have been applied to the identification of soybean fiber, casein fiber, and other analogous fibers. Species identification of nonwoody vegetable fibers have been given by Wangaard and published as a TAPPI suggested method *(17)*.

Illumination. A description of the use of the daylight fluorescent tubes for standard illumination and correct color differentiation under the microscope for fiber analysis have been given by Graff *(18)*.

Microscopy. To overcome the difficulties and limitations of earlier methods for obtaining absorption spectra of detailed microscopic structures, it has been

* To be presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 16-19, 1942.

[1] Member TAPPI; Kimberly-Clark Corporation, Neenah, Wis.

necessary to impose more rigid demands upon the monochromator and to introduce improvements in densitometry. The optical properties of the microscope and the spectral properties of the source together determine the requirements which must be made upon the monochromator. Cole and Brackett *(19)* have made analyses of these requirements and have described a convenient method of quantitative densiometry, together with the results of a simple test of this method. Marion *(20)* shows how the polarizing microscope can be adapted for use as a polarimeter by the addition of a simple analyzer constructed from a few square centimeters of polaroid. An enumeration of the different phases of microscopy as applied to the pulp and paper industry was described by Bentzen *(21)* in the annual TAPPI Microscopy Committee report for 1940. Photomicrographs have been published of twenty-eight different fibers, all taken at the same magnification from samples of papers in the Patra collection *(22)*. Reference to a number of highly proved, yet inexpensive, microscopes for the textile laboratory and their operation is made by Holmes and Munoz *(23)*. Lee and Schwarz *(24)* have described a method for impregnating textile materials with synthetic resins, collodion, or other materials for making microtome sections freehand with ordinary razor blades *(24)*. Wagner, Grant, and Eversole describe the construction of a measuring microscope which has a range of 16 cm. and which can be read to 0.000058 cm. A photograph of the instrument and a graph showing the longitudinal calibration curve are included *(25)*.

Microflora of felts and slimes. Smith describes thirty-nine species of organisms which have been isolated from mill felts *(26)*.

Particle Size. A description of the nature of fractionation and photomicrographic and analytical data are given on some clay fractions by Lyons *(27)*.

Photomicrography. Directions for the correct method of preparing microphotographs with reference to illumination problems and the procedure of making test plates with different exposure times are given by Dillmann *(28)*.

Specks in Paper. Description of specks in paper made from straw pulp is made by Armitage *(29)*.

Stains and Staining. The stain reactions on pulps exposed to ultra-violet light for periods up to 192 hours have been investigated by Graff *(30)*. A list of thirty additional stains for fiber analysis has been published by Noll *(31)*.

Literature Cited

1. Mennerich, Fred A. Cross-sectioning microtome for textile fibers. *Rayon Textile Monthly* 22, no. 2:104-5 (Feb., 1941).
2. Hock, Charles W., Ramsay, Robert C., and Harris, Milton. Microscopic structure of the cotton fiber. *Textile Research* 11, no. 4:200-17 (Feb., 1941); *J. Research Natl. Bur. Standards* 26, no. 2:93-104 (Feb., 1941); *Am. Dyestuff Reptr.* 30, no. 3:53-60, 75-6 (Feb. 3, 1941).
3. Macmillan, W. G., and Sen, M. K. Comparative observations on the swelling of jute fibers. I and II. *J. Textile Inst.* 30, no. 4:T73-82 (April, 1939; 32, no. 3:T45-56 (March, 1941).
4. Jayme, G., and Harders-Steinhauser, M. Cereal straw as raw material for paper and dissolving pulps. II. Morphology of straw fibers. *Papier-Fabr.* 39, no. 14:89-95 (April 5, 1941).
5. Hock, Charles W., Ramsay, Robert C., and Harris, Milton. Microscopic structure of wool fiber. *J. Research Natl. Bur. Standards* 27, no. 2:181-190 (August, 1941).
6. Ruska, H. Structures of cellulose fibers. *Kolloid-Z.* 92, no. 3:276-85 (Sept., 1940).
7. Dadswell, H. E., and Ellis, Dorothie J. Study of the cell wall. III. The fiber-bounding materials and their importance in pulping. *J. Council Sci. Ind. Research*, no. 13: 290-8 (1940); C. A. 35, no. 5:1631 (March 10, 1941).
8. Runkel, Roland. The study of the cell walls of tropical deciduous trees. II. Sheet formation and sheet structure in their relation to morphological and colloidal fiber properties. *Zellstoff u. Papier* 21, no. 5:139-40, 142, 144, 146, 148-54, 156 (May, 1941).
9. Sullivan, R. R., and Hertel, K. L. Surface per gram of cotton fibers as a measure of fiber fineness. *Textile Research* 11, no. 1:30-8 (Nov., 1940).
10. Fox, Kenneth R., and Finch, Rogers B. Simplified method for the determination of refractive indices of textile fibers. *Textile Research* 11, no. 2:62-71 (Dec., 1940).
11. Grimes, Mary Anna. A comparison of five methods of measuring fineness of cotton fibers. *Textile Research* 11, no. 11:4559-66 (Sept., 1941).
12. Seborg, C. O., and Simmonds, F. A. Measurement of the stiffness in bending of single fibers. *Paper Trade J.* 113, no. 17:49-50 (Oct. 23, 1941).
13. Armitage, F. D. Straw and esparto fibers. *Patra J.* 4, no. 4:60-3 (Jan., 1941).
14. Buschmann, K. The practical application of the method by Schwertassek for the quantitative separation of regenerated and native cellulose in the cotton spinning and weaving industry. Jentgen's *Kunstseide u. Zellwolle* 23, no. 2:40-8 (Feb. 1941).
15. Preston, J. M., and Roberts, O. D. Identification of fibers. *J. Textile Inst.* 32, no. 6:S22-30 (June, 1941).
16. Williams, Simon, and Tonn, W. H. Qualitative methods of identifying soybean fibers in mixtures of casein fiber, wool or other textile fiber. *Rayon Textile Monthly* 22, no. 9:523-4 (Sept., 1941).
17. TAPPI. Species identification of nonwoody vegetable fibers. *Paper Trade J.* 113, no. 14:29-36 (Oct. 2, 1942).
18. Graff, John H. Daylight fluorescent lamp for fiber analysis. *Paper Trade J.* 112, no. 2:39 (Jan. 9, 1941).
19. Cole, P. A., and Brackett, F. S. Technical requirements in the determination of absorption spectra by the ultraviolet microscope. *Rev. Sci. Instruments* 11, no. 12:419-27 (Dec., 1940).
20. Marion, Alexander. Adapting polarizing microscope for use as a polarimeter. *Ind. Eng. Chem. anal. ed.* 12, no. 12:777 (Dec. 15, 1940).
21. Bentzen, Fred W. TAPPI Microscopy Committee report, 1940. *Paper Trade J.* 112, no. 5:29-33 (Jan. 30, 1941).
22. Armitage, F. D. Paper fibers. Patra Information Leaflet no. 15 (Feb., 1941).
23. Holmes, Wm. O., and Munoz, F. J. The microscope in textile analysis. *Rayon Textile Monthly* 22, no. 1:41-3; no. 2:106-8 (Jan., Feb., 1941).
24. Lee, H. N., and Schwarz, E. R. Cross sectioning of textile materials by hand without microtome or other special equipment. *Textile Research* 11, no. 8:363-7 (June, 1941).
25. Wagner, G. H., Bailey, Grant C., and Eversole, W. G. A measuring microscope. Technique for measuring vertical distances up to several centimeters with a precision of 0.00005 cm. *Ind. Eng. Chem.*, anal. ed. 13, no. 9:658-9 (Sept., 1941).
26. Smith, Olga A. Microflora of felts and slimes. *Paper Trade J.* 113, no. 16:29-31 (Oct. 16, 1941).
27. Lyons, S. C. Practical aspects of particle-size control. *Bull Am. Ceram. Soc.* 20, no. 9:303-6 (Sept., 1941).
28. Dillmann, Fritz. Microphotography of textiles. Jentgen's *Kunstseide u. Zellwolle* 22, no. 12: 348-50 (Dec., 1940).
29. Armitage, F. D. Specks in paper from straw. *Patra J.* 4, no. 2:23-4 (Sept., 1940); *World's Paper Trade Rev.* 114, no. 19:924 (Nov. 8, 1940).
30. Graff, John H. Stain reactions of pulps exposed to ultraviolet light. *Paper Trade J.* 113, no. 13:100-4 (Sept. 25, 1941).
31. Noll, August. Supplement to the list of standardized dyes for fiber analysis. *Papier-Fabr.* 39, no. 31/32:185-7 (Aug. 9, 1941).

Lake States to Hear R. B. Wolf

The Lake States Section of the Technical Association of the Pulp and Paper Industry will meet at the Conway Hotel, Appleton, Wis., on Tuesday, February 3rd (note change of date) at 6:30 P.M. Robert B. Wolf, general manager, Pulp Div., Weyerhaeuser Timber Company, Longview, Wash., will be the guest speaker and will talk on Management and Labor. Mr. Wolf is to be the recipient of the TAPPI Medal on February 19 at the Commodore Hotel in New York City in recognition of his meritorious contributions to the technical advancement of the pulp and paper industry. Among the excellent papers previously presented by Mr. Wolf are the following: The Creative Workman; Nonfinancial Incentives; Pulp and Paper Mill Management in the Pacific Northwest Under the N.R.A., Trade Union Agreements; Collective Bargaining Today From Employers Viewpoint; and Harmonizing Security and Individual Rights From Management's Viewpoint.

Simplified Practice for Fruit Boxes

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 21, 1942—A revision of Simplified Practice Recommendation for corrugated and solid fiber boxes for canned fruits and vegetables has recently been approved by the industry according to an announcement by the Division of Simplified Practice of the Bureau of Standards.

The original recommendation, which was promulgated in 1933, established a simplified schedule of stock sizes of boxes based on the 27 stock sizes of fruit and vegetable cans adopted earlier by the canning industry.

Starch Evaluation by a New Viscosity Method*

By Carl A. Briggs[1] and Joseph L. McCarthy[2]

Abstract

Investigation of possible methods of evaluation of starch as a papermaking raw material has led to the development of suitable procedures. A new technique of starch characterization has been devised whereby the viscosity of a starch suspension is determined periodically while the starch is being heated at a constant temperature in a vessel such as an Ostwald viscometer. A number of commercial starches have been evaluated and the results are recorded.

Introduction

The extensive use of starch in papermaking and its specific use in paper coating makes desirable the development of suitable methods for the characterization of the starch raw material. The properties of a given starch are largely dependent upon the plant from which it is obtained as well as the methods used in its preparation.

Starch Preparation

Tapioca or Cassava starch, most commonly used in papermaking operations, is obtained from the tuberous roots of the Manoic or Cassava plant grown chiefly in Brazil, Madagascar, and the East Indies. In general, tapioca starch is prepared by mashing these roots, washing on sieves, and then rotating the mash in large horizontal cylindrical sieves in such a manner that the starch granules pass through the fine brass gauze walls while the pulpy wastes discharge from the end of the cylinder. After repeated washing and resettling, the starch is dried at a low temperature (42 deg. C.), then screened through silk cloth to give the final commercial product. Corn starch and potato starch are prepared similarly. In some potato starch factories, it is apparently customary to treat with potassium permanganate prior to tabling in order to oxidize any impurities which may be present and then after final tabling, the starch is dried, powdered, bolted, and bagged. On the other hand, corn or maize starch has to be separated quickly from associated nitrogenous substances in order to prevent deterioration of starch by fermentation or acid formation. After initial washing the corn is steeped, crushed in a roll mill, passed through a series of inclined shaking sieves, then concentrated by deposition on long wooden tables. Here the more fibrous and glutinous matter is removed in suspension while the starch, owing to its greater specific gravity, sinks to the bed of the tables. The paste formed on the head of the tables is diluted with water to 22 deg. Be., pumped into cloth-lined boxes, dried, and the resulting large blocks then broken up into the form required for papermaking purposes—e. g., crystals, pearl, etc. Although modified starches are said to give films of lower tensile strength than raw starches, by treating either tapioca, corn, or potato starch with an oxidizing agent, acid or enzyme, certain advantages can be obtained. Some of these will be pointed out later *(1)*.

Starch Properties

In consideration of the properties of a starch with reference to its suitability for use in a paper mill, the color, odor, and dirt are important because of their direct influence upon the quality of final product. The moisture content and the cold water solubility are useful in providing assurance of uniformity both in individual starch shipments, and in the composition of prepared starch mixtures. Microscopic examination of the shape, size, and homogeneity of the granules in a given starch, accompanied by comparisons with known samples, may aid both in the identification of the type of starch at hand and in the detection of the presence of adulterants. The commonly determined gelation temperature (the temperature range within which the granule bursts and degradation of the starch begins) is often taken as a useful characteristic of starch types; it is believed that a more satisfactory characterization can be obtained by use of the viscosity procedure given later.

After consideration of these factors and investigation of papermaking starches, the following procedures were developed and found satisfactory.

A. Color, Odor and Dirt

Starch (about 5 grams) is spread on a white sheet of paper and the color compared with standards. Any unusual odor from the starch is reported. Notation is taken of the presence of dirt in small or large amounts.

The dirt may be isolated by washing 200 grams of starch through a 200-mesh screen and transferring the residue to a weighed filter paper in a suction flask. After estimating the size of the particles by means of a Clark dirt estimator chart and reporting the results in terms of square millimeters of dirt, the filter paper is dried at 105 deg. C., weighed, and the percentage of grit and dirt present is calculated.

B. Moisture (Official German Method)

Starch (5 grams) in a tared weighing dish is dried for one hour at 50 deg. C., then for three hours at 120 deg. C. After cooling and weighing, the moisture content is calculated as a percentage of the original weight of starch *(1)*. (Initial drying at 50 deg. C. is necessary to prevent the starch from gelling and giving inaccurate results.)

C. Ash

In a weighed crucible, starch (5 grams) is heated for two hours at 100 deg. C., then placed in a muffle furnace and heated to constant weight. The results are reported as a percentage of the original weight. (Drying at 100 deg. C. is necessary to prevent starch

---

* Presented at the Meeting of the Maine-New Hampshire Group of the Technical Association of the Pulp and Paper Industry, University of Maine, Orono, Me., Sept. 25-27, 1941.
(Contribution No. 1 from the Research Department, Fraser Companies, Limited, Campbellton, N. B.)

[1] Member TAPPI; Fraser Paper, Ltd., Madawaska, Me.
[2] Member TAPPI; Fraser Companies, Ltd., Campbellton, N. B.

from bubbling over the sides of the crucible when placed in the furnace).

D. Cold Water Solubility

To a weighed sample (equivalent to 25 grams dry) of starch in a 400-cc. beaker, 250 cc. of distilled water is added. After mixing thoroughly, the contents are washed into a 500-cc. volumetric flask, and then water is gradually added to give the proper volume with intermittent shaking of the flask. After frequent further shaking during a one-hour period, the flask is allowed to stand for twenty-four hours. Then 25 cc. of the supernatent liquor is pipetted into a weighed evaporating dish and evaporated to dryness. The dish is cooled, weighed, and the weight of solids divided by 2.5 times 100 is taken as the percentage cold water solubility.

E. Microscopic Characteristics

A few granules of the starch are placed on a clean microscope slide, and the shape, size and homogeneity of the granules determined. Comparison with starches of known origin and type aids in identification. A graduated eyepiece can be used to determine in microns or millimeters the granule size and dimensions.

F. Gelation Temperature

A 5% suspension of starch, contained in a small beaker along with a thermometer, is placed in a water bath at 100 deg. C. and, with constant stirring, the temperature at which the starch thickens is recorded as the gelation temperature.

G. Starch Suspension Characteristics

Using distilled water, prepare a 3% starch suspension and determine the *pH value*. To an aliquot portion, add measured amounts of standardized 0.1 *N* acid or alkali solution sufficient to bring the suspension to pH 6.8 and record the *neutralization value* in milliliters per gram of starch.

Since no Ostwald-type viscometers were at hand for the present experiments, the viscosity characteristics of the above starch suspensions were determined using viscometers constructed from standard 20-cc. pipets. The delivery tubes were cut off 5 cm. below the bulb and in order that straight-line flow might be approximated, small capillary tubes (5 cm. long; 1.75 mm. I.D.) were sealed on. The volumes of the pipets were determined by weighing the mercury contained between the upper and lower marks; while the flow of the tubes was calibrated in centipoises at 20 deg. C. against 70% glycerine-water solution. For use in starch-cooking experiments these pipets were placed vertically inside cooking vessels, each of which consisted of a glass tube about 40 cm. long, 5 cm. in diameter, and with the lower end sealed off and blown into a bulb about 10 cm. in diameter.

In determining the *viscosity characteristics* of a given starch with this apparatus, a suitable aliquot portion of the above 3% starch suspension (after pH adjustment) was introduced into the cooking vessel and the pipet inserted into the neck of the glass tube. The tests were begun by placing the cooking vessel as far as possible into a water bath kept at 90 deg. C. At timed intervals (as rapidly as possible at the start) viscosity measurements were made by dipping the pipet into the suspension, drawing the liquid up to the upper mark, raising the tip of the pipet slightly above the surface of the starch suspension remaining in the cooking tube, and then measuring the time of flow of the suspension between the two calibrated marks. In order to maintain a uniform mixture, the suspension was agitated from time to time by blowing air through the pipet. The same procedure can be carried out much more easily and accurately by using an Ostwald viscometer both as a heating vessel and a viscometer.

Following these procedures various samples of starch were examined with results given in Table I. With the exception of the buff-colored starch Sample I (presumably a converted corn starch), all samples were white although with tints ranging from cream to bright blue-white. No dirt particles could be visually discerned in any starch and Sample D was observed to have an unusual odor; it was slightly sour indicating some deterioration. The moisture content of the starches varied from 7.5 to 15.2%, showing the importance of this test as a control measure. As indicated by the *neutralization value* most starches were slightly acid (excepting Samples J, K, L, and M). From the data given below, in the case of raw starches only, a high neutralization value appears to be associated with a low viscosity and rapid degradation on cooking as is indicated by the faster break down of Sample A as compared to Sample B. Microscopic examination of the starch granules showed some—e.g., tapioca—to be small spheres, and others—e.g., semimodified or modified—to be polygon shape. A potato starch, Sample M, had very large granules.

TABLE I.—CHARACTERISTICS OF VARIOUS STARCHES

Starch	Suspected Origin	Moisture %	Microscopic Shape	Examination Particle Size, microns	pH of 3% Suspension	Neutralization value, cc. of 0.1*N* NaOH/g.	Gelation Temp., deg. C.
A [1]	Tapioca, unmodified	11.65	Spheres	5-15 (10) [6]	4.70	0.133	66-67
B [2]	Tapioca, unmodified	11.65	Spheres	5-20 (8)	6.45	0.0267	67
C	Tapioca, unmodified	12.2	Spheres	5-15 (10)	6.30	0.016	..
D	Tapioca, unmodified	11.1	Spheres	5-18 (7)	5.90	0.04	..
E	Tapioca, unmodified	12.1	Spheres	5-12 (11)	6.05	0.028	..
F	Tapioca, unmodified	12.1	Ellipsoid	7-12 (10)	6.60	0.04	..
G	Semimodified grain starch	9.5	Polygon	5-12 (10)	5.90	0.057	..
H	Tapioca, unmodified	13.7	Sphere	3-15 (9)	5.60	0.071	..
I	Corn, modified	7.5	Polygons	5-17 (10)	3.50	0.16	..
J	Tapioca, modified	8.9	Polygons	3-12 (8)	8.85	....	..
K [3]	Grain, modified	10.4	Polygons	5-20 (10)	8.59	0.81 0.1*N* HCl	69-70
L [4]	Grain, semimodified	10.5	Polygons	3-12 (8)	8.59	0.81 0.1*N*	71-72
M [5]	Potato, unmodified	15.2	Like Potato	10-50 (25)	8.00 [7]	0.12 cc. 0.1*N* HCl	63-64

[1] Ash = 0.2%; cold water solubility = 0.56
[2] Ash = 0.1%
[3] Ash = 0.52%
[4] Ash = 0.34%
[5] Ash = 0.28%; cold water solubility = 0.12
[6] Figures in parenthesis are average particle size
[7] 1.5% Suspension 3.75/250 cc.

Of all the starch properties investigated, the most characteristic was found to be the change in viscosity of a suspension while heating at a constant temperature. Using the procedure described above, such viscosity changes were determined for each of the several starches investigated. Since it was desirable first to ascertain the degree to which the procedure was reproducible, several individual determinations were made of the viscosity changes during heating of each of two different starches—i.e., Samples A and B. The individual determinations, as shown in Fig. 1 by different symbols, are in acceptably close accord considering the makeshift nature of the apparatus. Application of the procedure to several different starches gave viscosity-heating time curves (Figs. 1, 2, 3) which are summarized in Table II. A typical viscosity-heating time curve demonstrates an initial increase in viscosity to a maximum value, followed by a more or less rapid decrease. From the data given in Table II, it is quite apparent that both the rate of change and the maximum viscosity is quite characteristic for a given starch. This has also been found to be the case for various starches by Morgan *(2)* using a photoelectric method to determine the changes in starch suspension on heating. Caesar *(3)* obtained similar viscosity data by recording curves of the amount of electrical work done in stirring heavy starch pastes (10 to 20% concentration) while heating for various periods of time.

For purposes of comparison the viscosity after a heating period of 50 minutes (or some other substantial time) may be more indicative than the maximum value because the latter is difficult to estimate accurately. On this basis unmodified starches show, in general, fairly high viscosity values although rather marked differences are seen to exist even among those samples which are apparently unmodified tapioca

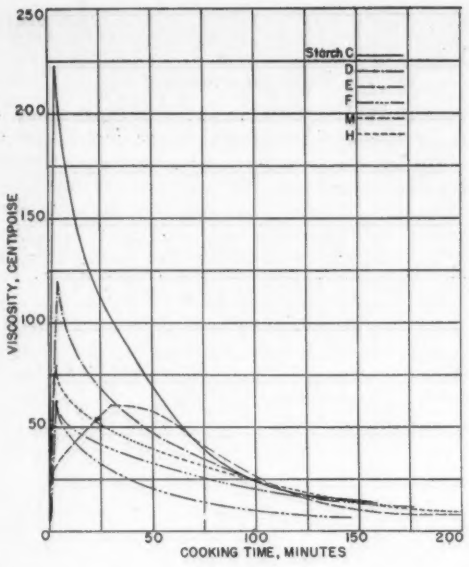


FIG. 2

Effect of Kind of Starch on Cooking Viscosity Characteristics. Cooking Condition: 3% Solution; pH 6.8; 90 deg. C.

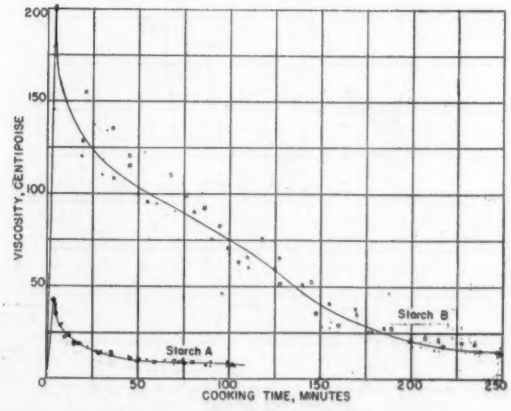


FIG. 1

Reproducibility of Viscosity Determinations. Cooking Condition: 3% Solution; pH 6.8; 90 deg. C.

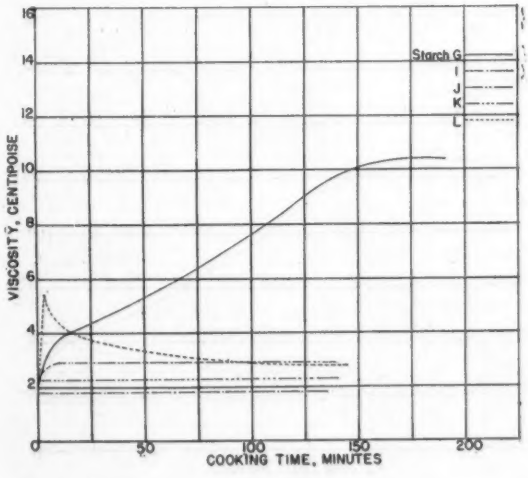


FIG. 3

Effect of Kind of Starch on Cooking Viscosity Characteristics. Cooking Condition: 3% Solution; pH 6.8; 90 deg. C.

TABLE II.—VISCOSITY vs. TIME IN CENTIPOISES AND MINUTES FOR VARIOUS STARCHES

Starch	Suspected Origin	Maximum	50 min.	100 min.	150 min.	(Viscosity 100 min.) / (Viscosity 50 min.) (100)
A	Tapioca, unmodified	43	11.2	6.5	...	58.1
B	Tapioca, unmodified	231	110	96.0	55.0	59.0
C	Tapioca, unmodified	222	72.5	24.5	14.0	33.8
D	Tapioca, unmodified	117	47.5	26.0	15.0	54.8
E	Tapioca, unmodified	60	22.5	9.7	...	43.2
F	Tapioca, unmodified	63	35.0	21.0	13.0	60.0
G	Grain, semimodified Starch	12.2 End	5.5	8.2	11.0	149.0
H	Tapioca, unmodified	81.0	37.5	22.5	14.0	60.0
I	Corn, modified	2.0	1.8	1.8	1.8	100.0
J	Tapioca, modified	2.9	2.9	2.9	...	100.0
K	Grain, modified	2.6	2.4	2.4	...	100.0
L	Grain, semimodified	5.4	3.2	2.6	2.4	81.2
M	Potato, unmodified	65.5[1]	52.5[1]	25.0[1]	11.0[1]	47.6[1]

[1] 1.5% solution; not 3.0% as in others.

starches. As is to be expected, the modified starches indicate lower viscosity values.

Relative Stability

The rate of change in viscosity during cooking, expressed in Table II as the *percentage decrease* of viscosity undergone from 50 to 100 minutes, is approximately the same—i.e., 50%—for most unmodified starches, although the final actual value of the *viscosity* after 100 minutes may be quite different depending upon the characteristics of each particular starch. With the semimodified starches, the decrease in viscosity usually progressed to a lesser degree, although with Sample G, a grain starch, an actual increase in viscosity was observed. The modified starches did not show any appreciable decrease in viscosity. From these relationships, it is apparent that the method is useful in predicting the relative stability of different starch suspensions to change in viscosity on standing.

Allowable Limits of Variation

In order to determine the allowable limits of pH variation in the starch suspension during the heating procedure, the viscosity relationships of Samples A, I, and M were determined at conditions of pH 5, 6, and 8 and in each case with the other conditions of concentration and temperature on the same comparable basis. The results (Figs. 4 and 5) show that with the tapioca starch (Sample A) the viscosity falls more rapidly as the acidity is decreased or the alkalinity is increased whereas with potato starch (Sample M) apparently the reverse trend is apparent. No effect of pH change was observed in the case of the modified corn starch (Sample I). From the observed viscosity differences, it is seen that the starch suspension should not deviate more than 0.1 pH from the standard value. Investigation of the effects of using temperatures of 80, 90, and 100 deg. C. during the heating procedure with Samples A, I, and M showed (Fig. 6) that the raw starch (Samples A and M) suspension decreased in viscosity more rapidly as the cooking temperature was increased, although in the temperature ranges investigated, no effect was observed with the modified starch (Sample I). Thus

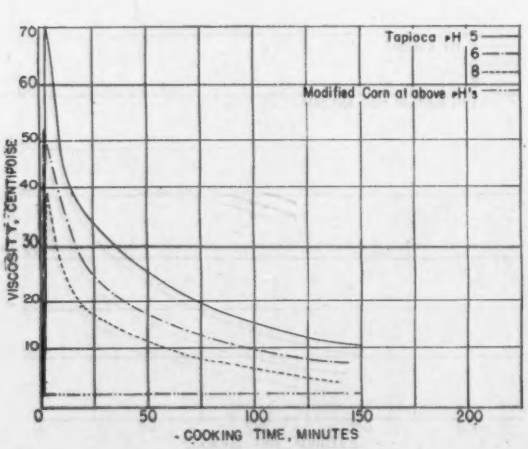


FIG. 4

Effect of pH on Starch Viscosity Characteristics of a Tapioca and Modified Corn. Cooking Condition: 3% Solution; 90 deg. C.

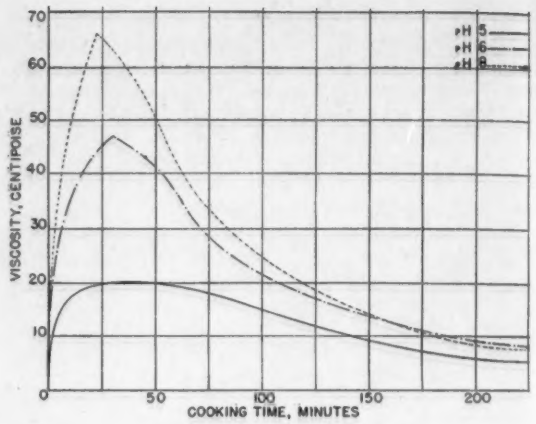


FIG. 5

Effect of pH on Starch Viscosity Characteristics of Potato Starch. Cooking Condition: 1.5% Solution; 90 deg. C.

variation in the heating temperature should not exceed ± 1 deg. C.

Conclusion

It is believed that the procedures described above will give satisfactory results in the evaluation of a given starch for use in a paper mill. For routine work, all of the above methods need not be employed. The viscosity-heating time data, which can be determined accurately and rapidly by use of appropriate Ostwald viscometers, are especially valuable and provide a definite method for determining reproductively and numerically the degree of difference between various commercial starches. This information particularly is useful at present in providing a rational basis for consideration of the feasibility of substituting new starch types for those customarily used.

Acknowledgement

The authors wish to express their appreciation to the Fraser Paper, Limited and to the Fraser Companies, Limited for their kindness in granting permission to submit this paper.

Literature Cited

1. Radley, J. A. "Starch and its Derivatives".
2. Morgan, W. L. *Ind. Eng. Chem. anal ed.*, 12, 313 (1940).
3. Caesar, G. V. *Ind. Eng. Chem.* 24, 1432-5 (1932).

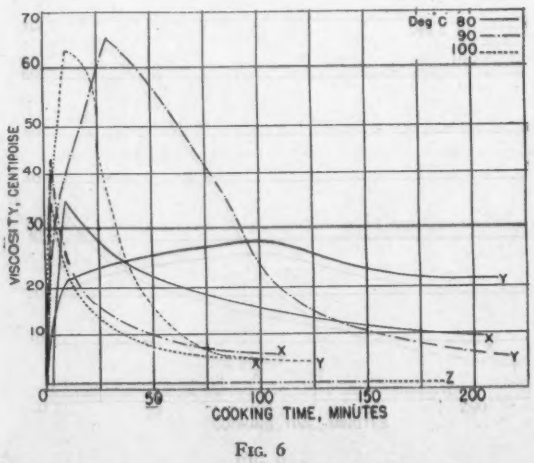


FIG. 6

Effect of Temperature on Starch Viscosity Characteristics. Z—Modified Corn Starch: 3% Solution; pH 6.8. Y—Potato Starch: 1.5% Solution; pH 6.8. X—Tapioca Starch: 3% Solution; pH 6.8.

Index, Technical Section, Paper Trade Journal Volume 113, July to December, 1941

Prepared by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The page numbers in the following index refer to the continuous pagination of the *Technical Section* and not to the pagination of the individual numbers of the PAPER TRADE JOURNAL. Author entries are printed in capitals.

To Facilitate Reference

In order to facilitate reference to the individual numbers of the PAPER TRADE JOURNAL, the following table of the pagination of the Technical Section appearing in each of the 26 numbers of Volume 113 (July to December, 1941) is given:

No. 1	July 3	1- 12		No. 14	Oct. 2	179-190
No. 2	July 10	13- 24		No. 15	Oct. 9	191-202
No. 3	July 17	25- 36		No. 16	Oct. 16	203-214
No. 4	July 24	37- 48		No. 17	Oct. 23	215-226
No. 5	July 31	49- 62		No. 18	Oct. 30	227-238
No. 6	Aug. 7	63- 70		No. 19	Nov. 6	239-250
No. 7	Aug. 14	71- 82		No. 20	Nov. 13	251-262
No. 8	Aug. 21	83- 94		No. 21	Nov. 20	263-274
No. 9	Aug. 28	95-106		No. 22	Nov. 27	275-286
No. 10	Sept. 4	107-118		No. 23	Dec. 4	287-298
No. 11	Sept. 11	119-130		No. 24	Dec. 11	299-310
No. 12	Sept. 18	131-142		No. 25	Dec. 18	311-324
No. 13	Sept. 25	143-178		No. 26	Dec. 25	325-336

A

Adhesives
- Coating 215
- Dispersion 216
- Economy in use of 216

AHLM, C. EDWARD. Spruce thiolignin 175
AIKENS, WM. H. *See* Kress, Otto
ALIMANSKY, M. I., and INSLEY, R. E. Power factor improvement 325
Alkaline process
- Digestion time, effect of 315
- Sulfidity, effect of 317
- Sweetgum 313

Alpa pulp
- Black liquor, cooking with 138
- Color, effect of carbohydrates on 138
- Kraft liquor, effect of 138

Alum
- Rosin size, precipitation of 282
- Water purification, use in 248

Alumina
- Electrophoretic velocity 156
- Isoelectric zone 156
- Precipitation zones 156
- Sizing, effect on 284

Aluminum resinate, existence of 158
Ammonium oxalate, pulp extraction with 151
Amylose, effect on viscosity of sodium oleate 22
Angle of contact apparatus 64
APPLING, JOHN W. Program of microbiological research 173
——, SMITH, OLGA A., and FRONMULLER, DOUGLAS. Bacterial degradation of felts. I. Bacteriological technique for studying degradation of felts 74
ARNOLD, KENNETH A. *See* Wells, S. D.
ARONOVSKY, S. I. *See* Nelson, G. H.; Reid, J. D.
Asplund defibrator 119
Asplund process 119
- Power consumption 121
- Steam consumption 121

Avena sativa, identification 182

B

Bacillus agri var., action on felts .. 77
Bacillus mycoides, action on felts .. 77
Bacteria
- Drier rolls, effect of 174
- Encapsulated, electron microscope study 229
- Slime 164

Bacteriological analysis
- Board 4
- Distribution errors 6
- Paper 4
- Source of errors 4

BAILEY, A. *See* Pearl, I. A.
BAIRD, P. K. *See* Heinig, M.; Mackin, G. E.
Bamboo, identification 182
BARD, JOHN WM. 'Effect of tannins on alkaline pulping 137
Barley straw, identification 182
Basis weight, effect on moisture regain of coated paper 18
BEARSE, N. I. See Frankevicz, John.
Beater pH, effect on sizing 284
Beating
- Ball mill, effect on packing density 222
- Packing density, effect on 221

BENSON, H. K. *See* Pearl, I. A.
Bentonite in water purification 246
Bersted mixer 5
BINGHAM, EUGENE C., and FIGLIOLI, DANIEL. New reflectometer and study of its performance 292
Black liquor
- Gypsum, addition of 262
- Pulping with 103

Bleaching
- Hydrogen ion concentration, effect of 84
- Kraft pulp 306
- Loblolly pine heartwood pulp .. 208
- Packing density, effect on 222
- Slash pine pulp 113
- Sweetgum pulp 323

Bleaching liquor
- Kraft pulp, action on, ... 307
- Manufacture 273

Bloom of paper, measurement 279
Board
- Bacteria isolated from 204
- Bacterial count, significance and accuracy 4
- Coated, cross sections 235
- Printing problems 82

Bochmeria tenacissima, identification 182
Bond paper, sweetgum pulp for 321
Bonding strength 270
Bondmeter 270
Book paper, sweetgum pulp for 321
BRADY, GEORGE F. Substitute materials in war economy 251
Brass 228
BRAY, MARK W., and MARTIN, J. STANLEY. Pulping sweetgum by alkaline processes. I. Effect of cooking variables on yield and quality 313
—. *See also* Schwartz, Sidney L.
BREED, ROBERT S., and SANBORN, J. R. Accuracy and significance of bacterial counts from paper and board 4
Bright stain, effect of ultraviolet light 163
Brightness
- Handsheets for testing 331
- TAPPI methods 327, 331

Brightness tester 328, 331
- Calibration service 330, 335

BROWNING, B. L. *See* Knight, G. D.

C

C stain, effect of ultraviolet light .. 160
Calcium carbonate
- Clay blends, adhesives for 216
- Coating adhesives 215

Calcium hypochlorite
- Manufacture 273
- Transportation 274

Calcium lignosulphonate, desulphonation by lime 223
Calcium sulphide
- Gypsum, reduction of, to 260
- Sodium sulphide, conversion to 261

Calender, roll slippage 56
Calendering
- Draw, effect of 56
- Moisture regain of coated paper, effect of 19
- Paper, effect on 55

Cannabis sativa, identification 182
Capacitors, effect on power factor .. 326
Cellulose
- Chain length diagram 28
- Cross and Bevan, composition .. 144
- Cuprammonium hydroxide, solubility in 151
- Cuprammonium hydroxide system 148
- Pectic solvents, effect of 151
- Swelling in cuprammonium hydroxide, effect of pectic solvents 153

Cellulose acetate, tenacities 33
Cellulose nitrate, fractional precipitation 29
Champion Paper and Fibre Co., electrical precipitation at 123
Chesapeake Camp Corpn., electrical precipitation at 126
CHIDESTER, G. H., and McGOVERN, J. N. Sulphite pulp from Douglas fir 98
—. *See also* McGovern, J. N.
Chipboard, bacterial analysis 7
Chlorine
Aqueous solution
- Composition 299
- Decomposition 300
- Manufacture 273

Kraft pulp, reaction with 306
Lignin, action on 263, 302
Lignosulphonic acid, action on 304
Water, solubility in 107
Chlorination, break point 95
Chromium 228
Coal
- Handling 188
- Pulverized, selection of 188
- Selection for stokers 187

Coated paper
- Equilibrium moisture content, factors in 17
- Moisture regain
  - Air velocity, effect of 20
  - Base stock, effect of 19
  - Basis weight, effect of 19
  - Calendering, effect of 19
  - Moisture content, effect of 18
- Sectioning method 233
- Tensile strength relations 233

Coating
- Bonding strength, effect on 272
- Calcium carbonate adhesives ... 215
- Pigment dispersion in 216
- Raw stock, relation of adhesives 216

Cockle, effect of drying 1
Coliform bacteria in slime 164
COLLINS, T. T., Jr., DAVIS, H. L., and ROWLAND, B. W. Behavior of alumina in relation to sizing 154
CONNOR, C. M., and NADELMANN, A. H. Mechanism of softening paper 115
Consistency tester, Hammermill 217
Consistometer 66
Containers
- Oilproof coating 238
- Printing problems 82

Contrast gloss 279

Copper 228
Copper sulfate, slime prevention and control 166
Corchorus capsularis, identification.. 183
Corncobs, action of ethanolamine... 73
Cornstalks, identification of fibers.. 182
Corrosion
  Fourdrinier wires 9
  Prevention with chlorinated rubber 255
Cotton
  Beating time vs. physical properties 14
  Identification 186
  Viscosity vs. beating time.... 14
  Viscosity vs. breaking length.. 15
  Viscosity vs. burst factor..... 15
  Viscosity vs. tear factor..... 14
Cotton linters
  Chain length diagram..... 31
  Viscosity vs. beating time..... 14
Cottrell electrical precipation process 123
CRAMER, GEORGE. Inks and their relation to paper..... 78
CROUP, A. H., and SAMSON, E. W. Consistency tests and packing characteristics of pulps..... 217
Crown-Zellerbach Co., electrical precipitation at..... 123
Cuprammonium hydroxide
  Cellulose system 148
  Viscosity, effect of pectin..... 150
Curl, effect of drying..... 1

D

DAVIS, H. L. *See* Collins, T. T., Jr.
DAVIS, J. D. Moisture content and regain of coated papers..... 17
Dendrocalamus arundinacea, identification 182
DICKERMAN, G. K. Performance of machine coated papers and the scope of their application..... 37
DOHNE, W. P., and LIBBY, C. E. Rosin-size precipitation and its effect in the sizing and strength properties of paper..... 280
Douglas fir
  Age, effect of..... 100
  Ammonium-base sulphite liquor 101
  Heartwood, sulphite process.... 99
  Magnesium-base sulphite acid.. 102
  Position in tree, effect of..... 100
  Sapwood, sulphite process..... 99
  Seasoning, effect of..... 100
  Soda-base sulphite liquor..... 100
  Sodium-calcium base sulphite liquor 101
  Sulphite pulping 98
DRESHFIELD, A. C., and LONG, J. H. Staybelite—a hydrogenated rosin for size..... 34
Drier felt, effect of tension..... 2
DRYDEN, E. C. *See* Reid, J. D.
Drying
  Cockling of paper, effect on.... 1
  Curling of paper, effect on.... 1
  Graduated temperature control. 1
  Packing density 222
  Phases of 1
Duponol, effect on starch viscosity.. 22

E

Edgeworthia papyrifera, identification 185
Electron microscope study of encapsulated bacteria 229
Electrophoretic mobility of starch, effect of soaps..... 23
ENGEL, H. C. *See* Musser, D. M.
Esparto, identification 182
Ethanolamine
  Corncobs, effect on..... 73
  Guaiacol, effect on..... 71
  Hemicellulose, extraction of.... 73
  Lignin, action on..... 71
  Phenols, effect on..... 71
  Vanillin, effect on..... 71
Ethylene glycol, use in glue coatings 236
EVERT, J. N. *See* McGovern, J. N.

F

FASOLD, R. A. Prevention of damage to newsprint in transit.. 11
Feed water 189
Felt decay, migrobiological research 173
Felts
  Bacteria, types of, in..... 203
  Bacterial degradation..... 74
  Test method 78
  Bacterial flora of..... 74, 203
  Tensile strength, effect of bacteria 77
Fibers
  Dimensions 186
  Stiffness bending 225
  Vegetable, nonwoody, key to... 186
FIGLIOLI, DANIEL. *See* Bingham, Eugene C.
Flax, identification 182
Flexibility index test..... 88
Fourdrinier wires
  Corrosion
    Air, effect of..... 9
    Rate factors in..... 9
    Types of 9
  Corrosion fatigue cracking..... 10
  Dezincification 10
  Hydrogen-ion concentration, effect of 10
  Pitting 10
FRANKEVICZ, JOHN, and BEARSE, N. I. Chemical and physical characteristics of soda pulps 83
FRASER, MARIAN. *See* Pascoe, T. A.
FREEMAN, HARRY F. *See* Olin, H. L.
Freight car
  Humping, effect of..... 12
  Newsprint, loading of..... 11
FRONMULLER, DOUGLAS. *See* Appling, John W.
Fungi in slime..... 164

G

Glassine papers, hygroscopic properties 116
Glue
  Flexible 236
  Hygroscopicity 238
  Viscosity 238
Glue coatings
  Ethylene glycol, use of..... 236
  Glycerol, use of..... 236
  Polyalcohols in..... 236
  Sorbitol, use in..... 236
Glycerol
  Glue coatings, use in..... 236
  Paper, action in 115
GOLDFINGER, G. Kinetical theory of sulphite cooking reaction..... 191
Gossypium hirsutum, identification 186
GRAFF, JOHN H. Stain reactions of pulps exposed to ultraviolet light 160
Gramineae, identification 181
Grasses, identification 181
Greaseproof paper, hygroscopic properties 116
GRIFFIN, ATTMORE E. Microbiological problems to water..... 95
Guaiacol, effect of ethanolamine.... 71
Gum. See Pulpwood—sweetgum
Gypsum
  Black liquor, addition to..... 262
  Kraft process, use in..... 259
  Reduction 260

H

HAJNY, GEORGE J., and RITTER, GEORGE J. Holocellulose research in cooperation with TAPPI 143
Hammermill consistency tester..... 217
HAWLEY, R. S. Making best use of existing power equipment..... 187
HEALD, ALFRED M. Colloidal behavior of soap-starch systems.... 21
Heat resistance index test..... 88
HEINIG, M., and BAIRD, P. K. Method for evaluating the surface roughness of paper..... 195
Hemicellulose, extraction from corncob 73
Hemp, identification 182
Herzberg stain, effect of untraviolet light 162
HIBBERT, HAROLD. Status of lignin problem 39
—. *See also* White, E. V.
HISEY, W. O., and MATCHUK, KONSTANTENE. Drainage resistance of mechanical pulps..... 131
HOLMES, J. A. Slime control in paper mills 164
Holocellulose
  Composition 144
  Determination 143
  Hydrolyzed, composition 144
  Pulp from 145
  Semichemical pulps as source.. 146
  Viscosity 145
  Yield 145
Hordeum sp., identification..... 182
HOUTZ, HAROLD H. Colloidal differentiation of starches..... 66
HOWELLS, T. A. Study of wood pulp-cuprammonium hydroxide system 148
HUGHES, A. E. *See* Roderick, H. F.
Hull fiber, viscosity vs. beating time 14
HUNTER, RICHARD S. Multipurpose photoelectric reflectometer... 275
Hydrogen-ion concentration
  Bleaching, effect on..... 84
  Electrophoretic velocity of alumina, effect on..... 157
  Sizing, effect on..... 284

I

Industrial production index..... 129
INGLE, GEORGE W., and LEWIS, HARRY F. Relation of chemical composition of filler pulps and color or white urea formaldehyde plastics 91
Ink
  Angle of contact, effect on.... 65
  Drying 81
  Lithographic problems 82
  Offsetting 81
  Paper, relation to..... 79
  Static electricity, relation of.. 81
INSLEY, R. E. *See* Alimansky, M. I.
INSTITUTE OF PAPER CHEMISTRY. Technique for the electron microscopic examination of encapsulated bacteria 229
Institute of Paper Chemistry, microbiological research 173
Insulating board, Asplund pulp for 122
Internal bonding strength of paper 270
Iron removal from water by lignin 237

J

Jute, identification of..... 183

K

KELLER, E. L. *See* Mackin, G. E.
KNIGHT, G. D., and BROWNING, B. L. Study of bleachability methods 167
Kraft process
  Black liquors, use of..... 103
  Gypsum, use of..... 259
  Low sulfidity, effect of..... 103
  Stack gases, electrical precipitation 123
  Tannins, effect of..... 137
Kraft pulp
  Bleaching 141, 306
  Bleaching liquor, action of.... 307
  Chestnut, effect of tannin..... 141
  Chlorine, action of..... 306
  Demethoxylation by chlorine.. 306
  Color
    Carbohydrates, effect of..... 138
    Tannins, effect of..... 138
    Loblolly pine, effect of tannins 140
    Stain reactions, effect of light 160
    Washing, temperature effect.. 309
KRESS, OTTO, and AIKENS, WM. H. Use of gypsum in kraft process 259

L

LAFONTAINE, GERARD H. Surface wettability of paper and the angle of contact test..... 63
LARSON, LESLIE L. Nature of lignin residues in unbleached and partially bleached sulphite pulps 263
Lead 228
LEWIS, HARRY F. *See* Ingle, George W.
LIBBY, C. E. *See* Dohne, W. P.
Light, effect on stain reactions.... 160
Lignin
  Building unit, polymerization mechanism 46
  Carbohydrate complexes 47
  Chemistry 39
  Chlorinated, solubility 308
  Chlorination 263, 302
    Mechanism 299
    Rate of 304
  Corncob, effect of monoethanolamine 71
Lignin
  Demethoxylation by chlorine.. 268, 302
  Desulphonated 223
  Ethanolamine condensation product 72
  Ethanolysis products 41
  Formation, hypothesis of..... 44
  Heat, effect of..... 72
  Hydrogenation 45
  Review 39
  Sodium acid sulphite, reaction with 177
  Sulphite pulp, chlorinated, isolation from 268
  Water, removal of iron from.. 239
Lignosulphonic acid
  Alkalies, action of..... 41
  Sulphite pulp, presence in.... 263
Lime, desulphonation of lignosulfonic acid 223
Linum usitatissimum, identification 182
Lithography, ink problems in..... 82
Loblolly pine
  Heartwood
    Chemical analysis 206
    Seasoning, effect of..... 208
    Sulphite pulping 206
LONG, J. H. *See* Dreshfield, A. C.
Longview Fibre Co., electrical precipitation at 123

LOWGREN, UNO. Asplund defibrating process 119
Lubrication of paper machines..... 172
Luminous apparent reflectance..... 279

M

McCARTHY, JOSEPH L. *See* White, E. V.
McGOVERN, J. N. *See* Chidester, G. H.
—, and CHIDESTER, G. R. Pulping loblolly pine heartwood with calcium-, Magnesium-, and sodium-base sulphite liquors..... 206
—, EVERT, J. N., and CHIDESTER, G. H. Absorption of chemicals from neutral sodium sulphite liquor by sweetgum chips 287
MACKIN, G. E., KELLER, E. L., and BAIRD, P. K. Effect of calendering pressure on sheet properties 53
Magnesium oxide, preparation..... 329, 334
Magnetizing current, effect on power factor 325
Manganese 228
Manila hemp, identification..... 180
MARK, H. Relation between chain length, distribution curve and tenacity 28
MARTIN, J. STANLEY. *See* Bray, Mark W.
MATCHUK, KONSTANTENE. *See* Hisey, W. O.
Mechanical pulp
  Bursting strength vs. specific resistance 135
  Compressibility vs. specific resistance 134
  Drainage factor vs. specific resistance 134
  Drainage resistance 131
  Freeness vs. specific resistance 134
  Porosity vs. specific resistance 135
  Specific resistance vs. concentration 133
  Stain reactions, effect of light on 160
  Tensile strength vs. specific resistance 135
Mercury compounds in slime prevention 166
Metals, strategic 227
Microbiology, research at Institute of Paper Chemistry..... 173
MILLER, R. H. Measuring green southern yellow pine pulpwood by weight or cord 25
Mimeograph paper, sweetgum pulp for 321
Mitsumata, identification 185
Murray-Waern recovery furnace, stack gases, electrical precipitation 127
Musa textilis, identification..... 180
MUSSER, D. M., and ENGEL, H. C. Cotton pulps. I. Influence of cuprammonium viscosity on beating 13

N

NADELMANN, A. H. *See* Connor, C. M.
NELSON, G. H., and ARONOVSKY, S. I. Use of lignin for removal of iron from water..... 239
NELSON, H. E. *See* PASCOE, T. A.
New Zealand flax, identification.... 181
Newsprint
  Car loading methods..... 11
  Inks, relation of..... 79
  Transportation, damage prevention 11
Nickel 228
Nomograph, specific resistance of mechanical pulp..... 132

O

Oat straw, identification..... 182
OLIN, H. L., and FREEMAN, HARRY F. Purification of water with bentonite 246
OLSEN, A. R. Maintenance paints and protective coatings..... 255
Oryza sativa, identification..... 182
OSGOOD, H. W., Jr. *See* Sutermeister, E.

P

Packing density 220
  Pressure, effect of 221
Paints
  Maintenance 255
  Rubber, chlorinated 255
Paper
  Acidity, relation of heat resistance 89
  Angle of contact
    Ink, effect of..... 64
    Sizing agent, effect of.... 63
    Smoothness, effect of..... 65
    Wetting agents, effect of.. 64
  Bacterial count, accuracy and significance 4
  Battleship construction, quantity used in 312
  Bond
    Calendering, effect of..... 57
    Slash pine, high density.. 115
  Bonding strength 272
    Coating, effect of..... 272
  Book, effect of calendering.... 57
  Brightness 295
  Bursting strength
    Calendering, effect of..... 58
    Moisture, effect of..... 56
    Oven aging, effect of..... 286
    Sizing, effect of..... 285
    Starch, effect of..... 70
    Ultraviolet light, effect of 286
  Calender speed, effect of..... 55
  Casein-coated, bonding zone.... 233
  Clay coated, bonding strength.. 272
  Coated
    Bonding zone 233
    Cross sections 234
Paper
  Coated
    Ink, relation of..... 80
    Reflectance 296
    Roughness values 200
    Sectioning method 233
    Tensile strength relations. 233
  Coating, anchoring of 236
  Cockle, effect of drying..... 1
  Cornstarch, effect of..... 70
  Curl, effect of drying..... 1
  Fiber lubrication..... 117
  Flexibility index, effect of heat 89
  Folding endurance
    Calendering, effect of..... 60
    Starch, effect of..... 70
    Oven aging, effect of..... 286
    Sizing, effect of..... 285
    Ultraviolet light, effect of 286
  Gloss
    Calendering, effect of..... 57
    Moisture, effect of..... 56
  Glycerol, effect of..... 115
  Groundwood book, effect of calendering 57
  Heat resistance, effect of pH.. 89
  Incipient penetration by angle of contact 65
  Internal bonding strength..... 272
  Kraft wrapper, effect of calendering 58
  Lacquer-coated, relation of ink 82
Paper
  Machine coated
    Applications 37
    Ink, relation of..... 79
    Mail-order catalogs 38
    Printing qualities 37
  Machine finished, relation of ink 79
  Moisture content
    At calender and regain... 56
    Properties, effect on..... 56
  Nonglare, design of 296
  Oil penetration, effect of calendering 60
  Oilproof coating 238
  Porosity
    Calendering, effect of 57
    Moisture, effect of..... 56
    Varnish absorption, effect on 90
  Potato starch, effect of..... 70
  Production curve, 1923-1929.. 129
  Reflectance, effect of color.... 294
  Roughness tester 195
  Roughness values 199
  Sized
    Accelerated aging 285
    Oven aging, effect of.... 286
    Ultraviolet light, effect of 286
  Sizing, effect of calendering.. 60
  Slash pine, high density..... 115
Paper
  Softening
    Fiber swelling in..... 117
    Mechanism of 115
    Object of 118
  Solid fraction
    Calendering, effect of..... 60
    Moisture, effect of..... 56
  Sulphate bond, effect of calendering 57
  Sulphite bond, effect of calendering 57
  Supercalendered, relation of ink 79
  Sweet potato starch, effect of 70
  Sweetgum pulp, properties of 324
  Synthetic resin-coated, relation of ink 82
  Tapioca starch, effect of..... 70
  Tearing resistance
    Calendering, effect of..... 58
    Moisture, effect of..... 56
    Sizing, effect of..... 285
  Tensile strength
    Calendering, effect of..... 60
    Moisture, effect of..... 56
    Starch, effect of..... 70
  Thickness, effect of calendering 57, 60
  Transportation. *See* Newsprint
  Varnish absorption, factors in 87
  Varnished, requirements for... 87
Paper
  Varnishing
    Baking temperature 89
    Specifications 91
  Varnish-litho, cross sections... 235
Paper industry
  Production fluctuation in..... 130
  War economy 252
Paper machine
  Lubrication, importance of..... 172
  Preventive maintenance 171
Paper mill
  Biological control 173
  Engineers, importance of..... 172
  Preventive maintenance setup.. 172
Paper testing
  Angle of contact..... 63
  Brightness 279
    Handsheets for 331
    TAPPI Standard 327
  Brittleness 87
  Contrast gloss 279
  Flexibility index 88
  Heat resistance index..... 88
  Heat test for relative stability 311
  Internal bonding strength..... 270
  Luminous apparent reflectance. 279
  Nonwoody vegetable fibers..... 179
  Reflectance 295
  Roughness 195
  Sheen 279
  Specular gloss 279
  Stability
    Folding endurance test.... 311
    Heat test 311
  Surface wettability 63
  Transmission 279
Parlon (rubber) 255
PASCOE, T. A., NELSON, H. E., and FRASER, MARIAN. Relation between bleachability and other pulp characteristics..... 210
Patent systems 213
Patents
  Courts, attitude of 214
  Government attitude 214
  United States 49, 230
PEARL, I. A., BAILEY, A., and BENSON, H. K. Studies on the desulphonation of calcium lignosulphonate with lime..... 223
Pectin, effect on cuprammonium hydroxide viscosity 150
PENISTON, Q. P. *See* White, E. V.
Phenols, effect of ethanolamine on 71
Phorium tenax, identification..... 181
Photoelectric reflectometer..... 275
Pinus caribaea Morelet, kraft pulping 109
Plant synthesis, theory of..... 44
Plasticizers 115
Polystyrene, fractional precipitation diagram 29
Poplar, hybrid 256
Power factor
  Capacitors, effect of..... 326
  Improvement, methods of..... 325
  Magnetizing current, effect of. 325
Power plants, coal selection..... 187
Printing, metallic 81
Prosize
  Advantages of 159
  Electrophoretic behavior 157
Protolignin 40
  Nature of 46
Pseudomonas, action on felts..... 77
Pulp
  Ammonium oxalate extraction.. 152
  Asplund 119
  Bleachability
    Bursting strength, relation to 210
    Significance of 200
    Tearing resistance, relation to 210
    Tensile strength, relation to 210
  Brightness, relation of permanganate number 170
  Bursting strength, relation to bleachability 210
  Consistency tester 217
  Cuprammonium hydroxide-insoluble 151
  Douglas fir 100
    Uses of 102
  Drying 1
  Filler for urea-formaldehyde plastics 91
  Holocellulose, properties of.... 146
  Hot water extraction..... 152
Pulp
  Hydrated, drying 1
  Hydrochloric acid, effect of.... 150
  Kraft. *See* Kraft pulp
  Loblolly pine heartwood, properties 208
  Mechanical. *See* Mechanical pulp
  Packing properties 220

Pentosans, effect of 202
Poplar, packing density 221
Rayon, chain length diagram ... 31
Southern pine, stiffness of fibers 225
Springwood, stiffness of fibers 226
Spruce, packing density 221
Strength characteristics, relation of bleachability 202
Sulphate, stiffness of fibers 226
Sulphite
Chlorination, behavior on .. 263
Lignin residue in 263
Stiffness to fibers 226
Summerwood, stiffness of fibers 226
Tearing resistance, relation of bleachability 210
Tensile strength, relation of bleachability 210
Urea-formaldehyde plastics, specifications for 94
Use requirements, relation of bleachability 202
Viscosity
Heat, effect of 150
Pectic solvents, effect of .. 150
Sodium hydroxide, effect of 150
Sulphuric acid, effect of .. 150
Water, effect of 150
Pulp packing density 220
Pulp testing
Bleachability
Chlorine-water method 167
Correlation of methods ... 170
Study of 167
Brightness, TAPPI method .. 331
Chlorine-water number 167
Copper number, standardization needed 202
Nonwoody vegetable fibers 179
Permanganate number, significance of 201
Stiffness in bending 225
Pulpwood
Hybrid poplars 256
Mensuration 25
Solid volume in tons 26
Solid wood in cord 26
Southern yellow pine, mensuration 25
Sweetgum 320
Alkaline process 313
Chemical composition 314
Impregnation, factors in .. 287
Physical properties 314
Weighing 25
Pyranol capacitor 326

Q

Quill winder 312

R

Ramie, identification 182
Redgum. *See* Pulpwood—sweetgum
Reflection meter
Measurements, errors in 278
Multiangle 292
Photoelectric 275
Reflectometer. *See* Reflection meter
REID, J. DAVID, DRYDEN, E. C., and ARONOVSKY, S. I. Effect of monoethanolamine upon corncob lignin 71
Rice straw, identification 182
RITTER, GEORGE J. *See* Hajny, George J.
RIVISE, CHARLES W. Patents . 213
ROBERTS, L. M. Electrical precipitation of solids from kraft stack gases 123
RODERICK, H. F., and HUGHES, A. E. Adhesive economies in the use of calcium carbonate coating colors 215
Roll grinding 173
Roofing industry, Asplund pulp for 122
Rosin
Composition 34
Hydrogenated
Applications 36
Oxidation tests 35
Solvents for 35
Waxes, compatability with 35
Oxidation tests 35
Rosin size
Alum, precipitation with 282
Sodium aluminate, precipitation with 282
ROWLAND, B. W. *See* Collins, T. T., Jr.
Rubber, chlorinated, in paint 255
RYAN, VICTOR A. Requirements of base papers for varnish coatings 87
Rye straw, identification 182

S

Saccharum officinarum, identification 182
SAMSON, E. W. *See* Croup, A. H.
SANBORN, J. R. *See* Breed, Robert S.
Satin white, effect of drying 17
SCHWARTZ, H. *See* White, E. V.
SCHWARTZ, SIDNEY L., and BRAY, MARK W. Suitability of high-density, high-summerwood slash pine for kraft and high-grade papers. 109
SEBORG, C. O., and SIMMONDS, F. A. Measurements of the stiffness in bending of single fibers .. 225
Secale cereale, identification 182
Sectioning coated papers 233
Semichemical pulp
Aspen, refining 146
Refined pulps from 146
Shortleaf pine, refining 146
Sweetgum 287, 321
White spruce, refining 146
Sheen of paper, measurement 279
SIMMONDS, F. A. *See* Seborg C. O.
SINGLETERRY, CURTIS R. Microscopic observations of the bonding zone of paper coatings .. 233
Sizing
Alumina, effect of 284
Hydrogenated rosin 34
Oven aging, effect of 286
Rosin, alumina, effect of 154
Staybelite 34
Ultraviolet light, effect of 286
White water, effect of 284
Slash pine, kraft pulping 109
Slime
Bacteria in 164, 203
Institute of Paper Chemistry studies 173
Microflora 203
Sources 165
Slime prevention
Copper sulphate 166
Mercury compounds 166
Sodium pentachlorophenolate .. 166
SMITH, OLGA A. Microflora of felts and slimes 203
——. *See also* Appling, John W.
Smoothness, effect on angle of contact 65
Soap, effect on starch viscosity 21
Soda process
Chestnut wood 141
Sulphur, use of, in 318
Sweetgum 317
Tannins, effect of 140
Soda pulp
Alpha-cellulose content, effect of 85
Bleaching, effect of pH 84
Brightness, relation to properties 84
Chestnut, extracted and unextracted wood 141
Mill control 83
Properties 83
Stain reactions, effect of light on 160
Soda-recovery furnaces, stack gases, recovery 123
Soda-sulphite pulp blends, properties 85
Sodium aluminate
Rosin size, precipitation of 282
Sizing, effect on 284
Sodium bicarbonate, absorption by sweetgum 287
Sodium hydrogen sulfide, reaction with lignin 177
Sodium hypochlorite, decomposition in solution 300
Sodium laurate, effect on starch viscosity 21
Sodium linoleate, effect on starch viscosity 21
Sodium oleate, effect on starch viscosity 21, 23
Sodium palmitate, effect on starch viscosity 21
Sodium pentachlorophenolate, effect on slime 166
Sodium resinate, electrophoretic behavior 157
Sodium stearate, effect on starch viscosity 21
Sodium sulphate, reduction 260
Sodium sulphide
Calcium sulphide, production from 261
Decomposition by heat 261
Sodium sulphite, absorption by sweetgum 287
Sodium tetrachlorophenolate, effect on slime 166
Soot blowers 189
Sorbitol in glue coatings 236
SPECHT, HARRY G. Factors in Fourdrinier wire corrosion 9
Spectrophotometry, abridged 279
Specular gloss 279
SPEEL, H. C. Sorbitol and other polyalcohols in glue coatings 236
Stain reactions, effect of light 160
STAMM, F. C. Effect of drying on quality 1
Staple fiber pulp, viscosity vs. physical properties 13
Starch
Arrowroot, viscosity 22
Bound-water content, effect of sodium oleate 23
Colloidal differentiation 66
Consistency-temperature curves 66
Consistometer experiments 66
Corn, viscosity 22
Electrophoretic mobility 23
Formamide dispersion, viscosity of 23
Molecular weights 68
Paper, effect on 70
-Soap viscosity curves 68
Sodium oleate, adsorption of .. 23
Tapioca, viscosity 22
Viscosity
Formamide-sodium oleate, effect of 23
Soap, effect of 21, 68
Zinc chloride solution 70
Wheat, viscosity 22
Zinc chloride solutions, viscosity 70
Starleaved gum. *See* Pulpwood—sweetgum
Static electricity, effect on inks ... 81
Staybelite 34
Solvents 35
Waxes, compatibility of 35
Steam boiler
Air supply and control 188
Automatic combustion control . 189
Steam plant
Carry over and blow down ... 190
Coal Selection 187
Waste steam and condensate .. 189
Steam traps 189
Sterilamp, effect on stain reactions 160
Stevens mixer 5
STEVENSON, LOUIS T. The new index of industrial production .. 129
Stiffness, pulp fibers 225
Stipa tenacissima, identification ... 182
Stokers, coal screen 187
Sugar cane, identification 182
Sulphate process
Chemical-wood ratio, effect of . 316
Sulphidity, effect of 317
Sulphur, use of 318
Sweetgum 313
Sulphate pulp, sweetgum 318
Sulphite process
Ammonium base, Douglas fir .. 101
Douglas fir 98, 102
Energy of activation 193
Kinetic theory 197
Loblolly pine heartwood 206
Magnesium base
Douglas fir 102
Loblolly pine heartwood .. 206
Sodium base
Douglas fir 101
Loblolly pine heartwood .. 206
Sodium-calcium base
Douglas fir 101
Sulphite pulp
Chlorinated, lignin isolated from 268
Chlorination 263
Stain reactions, effect of light on 160
Sulphur
Soda process, use in 318
Sulphate process, use in 318
Summerwood, slash pine, kraft pulping 110
Sunlight, effect on stain reactions . 160
Surface wettability of paper, angle of contact for 63
SUTERMEISTER, E., and OSGOOD, H. W., Jr. Measuring the internal bonding strength of papers 270
SWARTZ, J. N. *See* White, E. V.

T

Tannins, effect on kraft process ... 137
TAPPI. Brightness of paper 327
——. Brightness of pulp 331
——. Heat test for relative stability of paper 311
——. Species identification of nonwoody vegetable fibers 179
TAPPI Testing Division 286
Thiolignin
Mercaptan group in 176
Mercury derivatives 176
Methylation 176
Preparation and properties ... 175
TIGWELL, P. H. Preventive maintenance for the paper machine .. 171
Tin 228
Tomlinson recovery furnace, stack gases, electrical precipitation .. 124
Tristimulus colorimetry 279
Triticum sativum, identification ... 182

U

Ultraviolet light, effect on sizing .. 286
Urea-formaldehyde plastics
Ash content vs. brightness 94
Brightness and yellowness, relation of 94
Filler pulps for 91
Yellowness, causes of 93

V

Vanillin, effect of ethanolamine ... 71

VINCENT, REX. Use of bleachability tests in the marketing of pulp 200
VIVIAN, J. EDWARD. *See* Whitney, Roy P.
VOGELSANG, PHELPS. Hybrid poplars 256

W

Wagner recovery furnace, stack gases, precipitation 127
WANGAARD, FREDERICK F. Species identification of nonwoody vegetable fibers 179
War economy in paper industry ... 251
Water
Bacterial content, effect of break point chlorination 96
Bacterial counts 7
Chlorination break-point 95
Chlorine residues, effect of pH 95
Chlorine solubility in 107
Iron removal by lignin 239
Lignin, purification with 239
Water filter
Lignin powder 240
Lignin-corncob 241
Lignin-sand 244
Water purification
Bentonite 246
Bentonite-alum 248
Lignin 239
Lime-bentonite 248
Waxes, compatibility with Staybelite 35
Weller brittleness tester 87
WELLS, S. D., and ARNOLD, KENNETH A. Kraft pulping with low sulphidity 103
WEST, CLARENCE J. United States patents on papermaking, 1941 ..... 49, 230
West Virginia Pulp and Paper Co., electrical precipitation at 123
Wetting agents, effect on angle of contact 65
Wheat straw, identification 182
WHITE, ALBERT E. Strategic metals 227
WHITE, E. V., SWARTZ, J. N., PENISTON, Q. P., SCHWARTZ, H., McCARTHY, JOSEPH L., and HIBBERT, HAROLD. Mechanism of the chlorination of lignin 299
White water
Bacteria, types of 204
Rosin size, effect on 282
Sizing, effect on 284
WHITNEY, ROY P. Preparation of bleaching solutions 273
——, and VIVIAN, J. EDWARD. Solubility of chlorine in water .. 107
Wood, hydrogenation 45

Y

Yeasts in slime 164

Z

Zea mays, identification 182
Zinc 228
Zinc chloride, viscosity of starch solutions in 70

Empire State Meets at Watertown

The Empire State Section of the Technical Association of the Pulp and Paper Industry met at the Hotel Woodruff, Watertown, N. Y., on Saturday, January 10th. H. D. Cook of Sweet Bros. Paper Manufacturing Company presided as chairman. F. C. Goodwill of the St. Regis Paper Company arranged the program. There was a good attendance of about 50 in spite of the low temperature of 10 deg. below which prevailed at noon.

William Stericker of the Philadelphia Quartz Company, Philadelphia, Pa., described a method of using silicate of soda with hypochlorite to raise the brightness of paper. Preliminary trials were reported by two mills.

Chace Mather of the St. Regis Paper Company presented the problem of accounting for papermill losses. He pointed out that from 1½ to 3% of fiber furnish cannot be accounted for by the methods used. No generally accepted explanation was forthcoming but an interesting discussion of the subject ensued with W. R. Benson of the National Paper Products Company and Horace Spencer of Knowlton Bros. and others participating.

R. I. Moran of the National Aluminate Company described a new starch product called Isogel. This is a soluble starch which Mr. Moran claims is completely precipitated by alum.

It was voted to continue the membership in the Section of all members in military or naval service.

In the evening, Homer Rice of Du Pont presided as toastmaster and presented Alfred Dinsdale of Radio Station WATN and former officer of the Royal Navy who gave an able analysis of the moves of the war.

The Chairman announced that an appropriation has been made by the Section to stimulate younger members to present papers. Three prizes, $50, $30 and $10 will be given to members presenting papers that qualify under the rules being prepared. The system to be used in rating the papers and presentations are based on those adopted by the TAPPI Pacific Section.

Those present included: Fred Barber, M. H. Bennett, W. Ronald Benson, R. E. Burkhart, Harvey P. Cannon, Wells Clark, Hilliard D. Cook, J. A. Dean, Thomas Gerace, F. C. Goodwill, F. A. Hoar, H. Horwitz, Milton J. Maguire, D. C. Mather, H. L. Mellen, R. J. Murtaugh, W. J. O'Brien, J. D. Parmele, Henry Perry, M. W. Phelps, Harold T. Randles, Homer M. Rice, J. H. Rich, L. G. Simons, H. A. Spencer, P. D. Switzer, Beaumont Thomas, Dan Van Alstine, D. B. Williams and F. M. Williams.

Voids Suit Against Bausch & Lomb

Federal Judge Alfred C. Coxe yesterday dismissed the $40,000,000 suit brought by Murray Brensilber and Samuel Thibner, New York lawyers, against Bausch & Lomb Optical Company; Carl Zeiss, Inc., and three Bausch & Lomb executives, M. Herbert Eisenhart, Carl L. Bausch and Theodore B. Drescher.

The case was brought under an old Civil War statute and Judge Coxe, after hearing argument, said he was convinced that the statute, which authorized citizens in cases of fraud against the government to bring suit for double damages on behalf of the United States and themselves, "does not apply to this case, nor to anti-trust proceedings."

Whitney Seymour, attorney for Bausch & Lomb, said that Judge Henry W. Goddard, before imposing fines in a government proceeding under the Sherman anti-trust law against the same group of defendants, had asked whether there was evidence of fraud and had been told there was not.

He noted, too, that a plea of nolo contendere (no contest), not one of guilty, had been entered in the anti-trust case.

"Furthermore," said Seymour, "these defendants are devoting their time intensively to the production of instruments for use in national defense. The charge in this complaint, which is not true, that my clients conspired to charge the government 20 per cent over the proper sales prices of their products, is one that is seriously embarrassing to them, and unjust."

I. Ginsburg, representing the two plaintiffs, asserted that the defendant corporations had "clearly overcharged" the government during the period of the alleged conspiracy, 1921 to 1940 inclusive, and that an appeal would be taken.

Counsel for the defendants called the charge "false and fantastic."

Fred Coe Made Assistant Manager

[FROM OUR REGULAR CORRESPONDENT]

MECHANICVILLE, N. Y., January 19, 1942—Announcement is made here of the promotion of Fred Coe, chief engineer of the West Virginia Pulp and Paper Company, to the position as assistant manager of the entire plant. He assumed his new duties on January 1. Mr. Coe is a native of New Jersey and spent several years in the engineering department of the concern in New York City before coming to this city. He was sent to the local plant in 1920 and has made many friends in this section during his stay. His position as chief engineer has enabled him to become familiar with all branches of the business and therefore he is well qualified for his new duties.

Pacific TAPPI Meets at Longview

The third dinner meeting for the 1941-1942 season of the Pacific Section of TAPPI was held at the Hotel Monticello, Longview, Wash., January 6th, with an attendance of 93. Mr. Preston Varney, Pulp Division, Weyerhaeuser Timber Company, made arrangements for the meeting which was presided over by Mr. T. H. Galloway, Assistant Technical Supervisor of the Crown Willamette Paper Company, Division of the Crown Zellerbach Corporation.

Some of the more important factors influencing the quality of lime used by pulp and paper mills were very graphically presented by Mr. W. G. Bauer, Ceramic Engineer, Washington Brick & Lime Co., Mr. Lloyd Ewing, Technical Department of the Longview Fibre Company discussed the burning of lime in kraft mills, and Mr. A. M. Cadigan, Technical Director for St. Regis Kraft Company offered his comments on the use of lime in the recovery system of a modern kraft mill. The use of lime in the preparation of bleach liquor was presented by Mr. Walter Jacoby, Technical Department, Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, and Mr. G. F. Alcorn, Plant Engineer, Pulp Division Weyerhaeuser Timber Company presented an interesting description of bulk lime handling equipment.

Those present included: O. C. Abbott, J. Allen, Fred Armbruster, E. R. Barrett, Wolf G. Bauer, C. T. Beals, Geo. H. Beisse, John I. Benedict, Homer H. Best, Harold W. Bialkowsky, Louis H. Blackerby, Ernie H. Burns, A. M. Cadigan, J. G. Carson, Wm. C. Chapman, R. E. Chase, R. E. Chase, Jr., J. W. Clarke, Wm. W. Clarke, Henry W. Dauterman, Harold A. Deery, David M. Dibrell, John Doering, R. E. Drane, Carl J. Dupras, M. L. Edwards, A. E. Erickson, Ed Escher, Lloyd Ewing, Carl Fahlstrom, Donald G. Felthous, Francis W. Flynn, Otis W. Fontino, G. H. Gallaway, Wm. R. Gibson, James Gould, Russell Graff, C. H. Graham, R. N. Hammond, Ben Harris, L. G. Harris, John F. Hart, R. S. Hatch, H. A. Hauff, W. H. Haverman, Wylie Hemphill, Kern Hendricks, E. J. Hinde, H. F. Hoehne, C. F. Holcomb, W. F. Holzer, W. C. Jacoby, Lyal Jones, John Klein, Julium LaPonite, S. J. Mannus, Vern L. Mauerman, C. J. McAllister, C. R. McCully, C. L. McPhail, G. D. Murphy, A. G. Natwick, Ben E. Natwick, Martin W. Nill, Jr., Mr. Emil Nixon, M. H. Norton, Max R. Oberdorfer, F. A. Olmsted, H. T. Peterson, R. T. Petrie, William Pittam, H. H. Richmond, Walter A. Salmonson, John W. Schuh, Harlan Scott, Fred Shaneman, Robert W. Shearer, J. M. Shedd, W. J. Shalton, D. L. Shirley, A. P. Siebers, Larry K. Smith, Ray Smythe, Earl G. Thompson, Preston Varney, R. O. Vognild, W. E. Wegner, W. A. Wengel, R. S. Wertheimer, Bob Wilcox, Jack Wilcox, John A. Wilcox and Edward P. Wood.

New Books of Interest

INDUSTRIAL INSTRUMENTS FOR MEASUREMENT AND CONTROL by Thomas J. Rhoades, engineer, Procter and Gamble Company, published by McGraw-Hill. This is a 573 page book intended for use as a textbook for the formal study of automatic control in engineering schools and as a practical reference book for those concerned with industrial problems. It is the author's purpose to include material which helps to make clear the theory being studied. The following subjects are covered: pressure and vacuum gauges; indicating and recording thermometers; differential pressure flow meters; liquid level measurements, telemetering and automatic control mechanism. It is an excellent book for development engineers and chemists. The price of the book is six dollars.

INORGANIC CHEMICAL TECHNOLOGY by W. L. Badger (member TAPPI), Dow Chemical Company and E. M. Baker, University of Michigan, published by McGraw-Hill. (Second edition). (237 pages). The obsolescence of the first edition (1929) has made necessary the preparation of this new book on the subject. It is essentially a textbook and not a handbook. Among the subjects covered are common salt, sulphuric acid, fixed nitrogen and nitric acid, hydrochloric and phosphoric acids, sodium carbonate, caustic soda and chlorine, alum, sodium, sulphate, trisodium phosphate. The price is $2.50.

TECHNICAL REPORT WRITING by Fred H. Rhodes, professor of chemical engineering, Cornell University, published by McGraw-Hill. (125 pages). The author draws on his twenty years of experience in teaching students how to report their experiments and conclusions clearly. It is written from the standpoint of the engineer rather than from that of the teacher of English composition. It covers some of the simpler mathematical and graphical methods by which experimental data may be correlated, analyzed and presented. The book shows how to keep a laboratory notebook so that it will not only serve as the basis of a report but will also be available as evidence in patent litigation. The construction of nomographs is dealt with and particular stress is laid on the organization and form of the report and on the effective presentation of information both written and oral. The price is $1.50.

These three books may be obtained from the Book Dept. of the Technical Association of the Pulp and Paper Industry, 122 E. 42nd street, New York, N. Y.

TAPPI Notes

S. L. Swasey former chief chemist, Champion Paper and Fibre Company is now technical specialist for the Pulp and Paper Section, OPM, Washington, D. C.

John H. Frankl formerly cost consultant, Seattle Luggage Corporation is now superintendent, Laminated Paper Boards, Inc., San Francisco, Cal.

Reservations for rooms at the Commodore Hotel for the annual meeting of the Technical Association should be made direct with the hotel. Those who must register for selective service on February 16 can, in many States, do so any time prior to this date or registration can be made in New York on February 16. The annual meeting of TAPPI will definitely be held at the Commodore Hotel, New York, N. Y., on February 16-19, 1942.

The Inter-Society Color Council, of which TAPPI is a member will hold its annual meeting at the Metropolitan Museum of Art on February 26-27, 1942. There will be a symposium on Color in Art Education in which the following subjects will be presented: Color mixture systems; color order systems; the popular session will be held at the Museum at 8 p.m., February 26th. The subjects will be Lighting at the National Gallery by Stephen Pichetto; Color and People by Faber Birren and Abstract Design, Color and Music by M. E. Bute.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

Importers may have their shipments listed in these columns by submitting records of imports to this publication.

NEW YORK IMPORTS

WEEK ENDING JANUARY 17, 1942
SUMMARY

NEWSPRINT

——, ——, ——, 1751 rolls.

RAGS, BAGGINGS, ETC.

Padawer & Co., ——, ——, 100 bls. cotton waste.

OLD ROPE

D. M. Hicks, Inc., ——, ——, 162 bls. old hemp rope cuttings, 70 bls. old hemp cloth, 117 bls. old hemp strings.
Smith & Bird, ——, ——, 500 bls. old hemp rope cuttings.

CASEIN

A. Hurst & Co., Inc., ——, ——, 50 bags (ground), 1,251 bags.
E. M. Sergeant Pulp & Chemical Co., Inc., ——, ——, 334 bags.
Louis Furth, Inc., ——, ——, 417 bags (lactic).
American British Chemical Supplies, ——, ——, 667 bags (lactic ground), 417 bags (ground).
J. H. Schroeder Banking Corp., ——, ——, 417 bags (ground).
C. W. Burckhalter, Inc., ——, ——, 417 bags.
Trans Atlantic Animal By-Products Corp., ——, ——, 167 bags.
Eugenio Lang, Inc., ——, ——, 834 bags, 334 bags (ground).
H. S. Cramer & Co., Inc., ——, ——, 834 bags (ground).
Investment Corp. of Phila., ——, ——, 417 bags.
Edmond J. Lang, ——, ——, 251 bags (ground).
Pacific National Bank, ——, ——, 834 bags (ground).
Mitchell Button Manfg. Co., ——, ——, 167 bags.

HIDE GLUE, ETC.

T. W. Dunn Co., ——, ——, 100 bags hide glue, 300 bags bones.
Anglo American Oilex, Inc., ——, ——, 120 bags hide glue.
Bank of The Manhattan Co., ——, ——, 650 bags glue.
Biological Raw Products, Inc., ——, ——, 100 bags skin glue, (in sheets).

WOOD PULP

——, ——, ——, 10,585 bls. sulphite pulp.

New England TAPPI Meets

The New England Section of the Technical Association of the Paper and Pulp Industry met at the Hotel Roger Smith, Holyoke, Mass., on Friday evening, January 16, 1942, at 6:45 P.M. Norman I. Bearse of Champion International Paper Company, Lawrence, Mass., presided as chairman.

The first speaker of the meeting was Raymond W. Lacey, Executive of the Chemical Paper Company, who talked on the Waste Paper Stiuation as it is today. He said that it is a critical problem these days and a substitution of waste is going to make it very difficult to maintain the past quality of paper. War's effect on the paper industry is different from the last war, in that nearly everything that goes to our armed forces as well as to the United Nation's forces, must be packaged. The shell containers as well as other materials that leave the country in box board cannot be reclaimed. He went on to mention that paper and board are not as yet on the critical list but as the war progresses, if it becomes necessary for the Board Industry to substitute pulp for waste paper in order to meet the deliveries, it will be done. Four months ago the OPM estimated the defense effort would require 40 to 50% of the board production.

The guest speaker was Arthur Cornell, chief chemist of the Forbes Lithograph Company, who spoke on lithography very interestingly and informatively. He spoke of its history from the early Bavarian Craftsman who developed the lithographic stone and the method for reproducing from it, to the modern offset presses that are turning out paper at tremendous speed. He discussed the advantages of the introduction of offset blanket which allowed the lithographer to print on rougher stock and use lighter pressure. He spoke at length of the advantages of humidity control and stated that there have been fewer rejections since their plant had been humidified. He talked about various problems that come up in a large lithographic plant, one of the problems being —ink often has been the cause of trouble rather than the paper. The Forbes Lithograph Co. always adjust ink to suit the paper. The water fountains diluting ink is very often a source of trouble. Many questions from the floor on printing problems were answered.

Those present included: Norman Alper, C. J. Backus, A. F. Bailey, P. S. Barnhart, R. T. Bingham, N. I. Bearse, R. F. Blount, P. S. Bolton, Charles Champion, Fred Clark, Arthur W. Cornell, Mr. and Mrs. James Cogshill, Walter Cooper, Harry Duston, R. H. Doughty, Clarence W. Damon, Ed Engel, Thomas Flaherty, Mr. and Mrs. P. B. Fowler, C. J. Fox, John Fridolph, Francis Gillespie, E. E. Girard, W. F. Hoffman, C. L. Horton, Andrew Jackson, D. S. Kaltreider, J. P. Kennedy, Helen U. Kiely, Lena E. Kelley, A. D. King, R. W. Lacey, O. F. Lane, R. M. Leighton, Richard Loebenbury, F. H. Lovenberg, F. W. Lyon, R. D. McCarron, Ollie W. Messner, E. O. Nash, R. R. Nelson, R. W. Pattison, A. L. Perry, John P. Phelps, Fred W. Schneider, Charles Slocum, James Spadaro, T. L. Stirling, George W. Sullivan, D. L. Swan, G. O. Trudeau, E. N. Wennberg, C. A. Weymouth, C. M. Woodcock, Paul H. Yoder and Leon M. Yoerg.

Potdevin Gives Bonus

The year 1942 brought a bonus to 256 employees of Potdevin Machine Company in the form of United States Defense Bonds. All active employees participated in the distribution as well as those who resigned during the year to enter the services.

This gift of bonds is intended to start the ball rolling for the payroll deduction plan of bond purchasing which Potdevin is instigating among their employees.

New York Paper and Pulp Market Review

OPA Abolishes "Old Kraft Corrugated Box" Classification—Paper Market Active With Prices Firm and Unchanged — Pulp Production Now Controlled By Allocation — Other Markets Unchanged.

Office of the PAPER TRADE JOURNAL
Wednesday, January 21, 1942.

Active demand in major lines is reported by many manufacturers' representatives, jobbers, and general paper merchants during the current week. Trade comment indicates a somewhat narrower demand. It is the opinion of some quarters of the wholesale paper market that as the war program expands, demand for some important items in normal times will be correspondingly restricted. The opinion is apparently quite largely held that a substantial curtailment must be expected in some paper items and some paper specialties will be temporarily discontinued.

Production and consumption in most major lines of paper is, however, quite widely expected to continue at a very high level, with leading mills operating at full capacity.

The index of general business activity for the week ended January 10 declined to 132.2%, from 137.4% for the previous week, compared with 121.7% for the corresponding week last year. Paper board output was 9.0% higher.

Paper production for the week ended January 10 was estimated at 103.2%, compared with 88.4% for 1941, with 94.2% for 1940, with 80.4% for 1939, and with 62.3% for the corresponding week for 1938.

Paper board production for the week ended January 10 was 101.0%, compared with 77.0% for 1941, with 72.0% for 1940, with 62.0% for 1939, and with 52.0% for the corresponding week for 1938.

Newsprint consumption for the current year is expected to equal, if not exceed, the gain made last year, which was 5.3%. Current estimates of publishers' stocks on hand for 1941 were 55,775 tons above 1940.

Total U. S. production of newsprint for 1941 was 1,014,912 tons; Canadian production, 4,785,577 tons; and Newfoundland production, 344,800 tons. The U. S. output was the largest on record, excepting only the year 1937. U. S. mill stocks at the close of 1941 totaled 7,586 tons, while Canadian mill stocks aggregated 123,571 tons.

Some small changes in prices on minor paper items have been reported this week. No important change from average, representative market quotations has, however, been reported at this date. Although some doubt has been expressed in some quarters of the market that the smaller converting plants may benefit to the expected extent by the allocation pulp program, which went into effect on January 9, some such controlling plan is generally viewed as unavoidable to keep all possible plants in operation during the war.

Chemical Pulp

No important change in prices or demand has been reported this week. The chemical pulp market is strong, with prices firm and unchanged.

Rags

New cotton cuttings are in active demand. Prices are firm. No important change from prevailing average, representative quoted prices has been reported this week.

Old Rope and Bagging

Demand of mills continues to absorb about all the limited supplies of old Manila rope available. Prices are firm and unchanged.

Scrap bagging is active, with prices firm. Mill buying of the roofing grades is active this week. Prices continue unchanged.

Old Waste Paper

The old waste paper market is firm under a heavy demand for some grades. The OPA has issued an amendment to its waste paper price ceiling schedule No. 30. It abolishes the grade, "old kraft corrugated boxes," at $27 per ton. After January 19, all paper boxes will be classified as "old corrugated boxes", at $16.50 per ton, f.o.b., shipping points.

Twine

Some comment is reported in the twine market that higher prices on some standard grades of hard and soft fiber twines are justified by current conditions. Prices are firm, with a few minor upward revisions in some imported fibers, which are becoming scarce.

Thilmany Credit Union Reports

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 19, 1942—Loans in excess of $53,800 were made to 1,051 borrowers last year by the credit union of the Thilmany Pulp and Paper Company, Kaukauna, Wis., according to reports submitted at the annual meeting. The organization, since it was formed in 1933, has made loans totalling $232,253 to 3,817 persons. Its assets as of January 1 this year were more than $57,000. The membership has grown to 800.

W. C. Hess was reelected president. Other officers chosen were: Otto Becker, vice-president; Mrs. Helen Arps Miller, secretary; A. P. Tate, treasurer, and Mrs. Jean Thompson, clerk.

The Thilmany company has adopted the voluntary payroll deduction plan for the purchase of national defense savings bonds, L. C. Smith, personnel director, announced.

F. Higgins to be Package Consultant

Container Corporation of America announced last week the appointment of Freeman Higgins as package machinery consultant. As a member of the sales promotion staff, headed by E. A. Throckmorton, Mr. Higgins, in addition to other duties, will be available to the company's customers for consultation. For the last 19 years he has been associated with Johnson Automatic Sealer Company and Battle Creek Bread Wrapping Machine Company in engineering, production, and sales capacities.

COPPER is vital to VICTORY

WE ARE CONSERVING COPPER by encouraging the reclosing and recutting of all types of SCREEN PLATES to get the fullest use and cut down, as far as humanly possible, on replacements. Our *NEW TYPE-DUPLEX SLOT* plates require *less copper* than ordinary plates — yet give highest capacity.

Mutual cooperation on conserving vital COPPER will help WIN THE WAR.

Fitchburg Screen Plate Co., Inc.
301 SOUTH STREET, FITCHBURG, MASSACHUSETTS

LAUNCH THIS VICTORY PROGRAM

AGAINST *Slimeform** WITH THE AID OF W&T

Action in advance of attack is your best defense against the slime-forming micro-organisms. To strengthen your drive for peak production, you'll want to rid your plant of the possibility of obstructed lines, plugged felts, blinded wires, spots, stains and pin-holes in your product . . . difficulties so often due to inadequate microbiological control of process water.

Even under today's conditions, Wallace & Tiernan is in a position to aid many paper producers facing these difficulties. Experience in more than 300 mills has shown how closely controlled application at the proper points can conserve chlorine and still eliminate microbiological growths. For information and assistance that will help keep your plant processes permanently slime-free, get in touch with Wallace & Tiernan today. P-32

*Slime-forming organisms that thrive in process water

WRITE FOR 42-PAGE BOOKLET
"Microbiological Control in Pulp and Paper Manufacture" discusses latest practice now employed at prominent mills. Write for a copy of TP472.

WALLACE & TIERNAN, CO., Inc.
MANUFACTURERS OF CHLORINE AND AMMONIA CONTROL APPARATUS
NEWARK, NEW JERSEY • REPRESENTED IN PRINCIPAL CITIES

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL
Wednesday, January 21, 1942.

BLANC FIXE—Quotations on blanc fixe are firm and continue unchanged at prevailing market levels. Demand reported good for the week. The pulp is currently quoted at $40 per ton in barrels, at works; the powder is offered at $60 per ton, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm. Market reported active for the week. Prices stabilized by agreement with OPA. Bleaching powder is currently quoted at $2.25 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are firm. Demand reported good for the week. Standard domestic casein, 20-30 mesh, is currently quoted at 31 cents per pound; 80-100 mesh at 31½ cents per pound; all prices in bags, car lots. Standard Argentina casein is currently offered at 27 cents per pound. No quotations on French casein.

CAUSTIC SODA—Prices on caustic soda are reported firm. Demand heavy for the current week. Solid caustic soda is currently quoted at $2.30 per 100 pounds, flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged this week. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine unchanged. Market under full priority control, with full allocation on February 1. Chlorine is currently quoted at from $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—Quotations on some grades of rosin are higher for the current week. "G" gum rosin is currently quoted at $3.23 per 100 pounds, in barrels, Savannah. "FF" wood rosin is currently quoted at $3.21 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $3.49 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand good for the current week. Domestic salt cake is currently quoted at $15 per ton in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. Quotations on imported salt cake are nominal at $16 per ton.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market quotations. Demand reported active. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch continue unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported active. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at from $1.75 to $1.85 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices of sulphur are firm and continue to conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mills. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$6.00	@	$7.00
Superstandard	5.25	"	6.25
Northern Standard Wrapping	4.75	"	5.25
Standard Wrapping	4.75	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.05	"	—
White No. 1½	1.00	"	—
White No. 2	1.00	"	—
Anti-Tarnish M. G.	.95	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case			
Unbleached, Jr.	2.35	"	—
Bleached, Jr.	2.65	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.75	@	10.75
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	*45.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Ll. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*60.00	"	—
Binders Boards	*80.00	"	—

*OPA Maximum Prices.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext.				
No. 1	$40.25	@ $47.25	$41.40	@ $48.50
100% Rag	32.20	" 37.75	33.35	" 39.25
85% Rag	....	"	32.20	" 37.75
75% Rag	24.75	" 29.00	25.90	" 30.50
65% Rag	....	"	22.80	" 27.75
50% Rag	18.70	" 22.75	19.90	" 24.25
25% Rag	16.40	" 20.00	17.55	" 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$10.55	@ $12.75	$11.70	@ $14.25
No. 2	9.65	" 11.75	10.80	" 13.25
No. 3	9.20	" 11.25	10.35	" 12.50
No. 4	8.90	" 10.75	10.05	" 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper. Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	No prices		
Dry	No prices		
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	45.00

Chemical Pulp

(On Dock, Atlantic, Gulf and W. Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.62½	@	4.71
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	4.21
Strong Unbleached Sulphite	3.17½	"	4.21
News Grade, delivered			
Unbleached Sulphite	63.75	"	67.71
(On Dock, Atlantic Ports)			
Kraft Bleached	4.12½	"	—
Kraft Light & Strong	No price		
Kraft No. 1	No prices		
(Delivered)			
Kraft Domestic and Canadian	3.00	"	4.00
(Delivered)			
Soda Bleached	4.30	"	

Add 60 cents per short ton for charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac City.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	8.00	@	8.25
Silesias No. 1	4.50	"	4.75
New Unbleached	8.00	"	8.25
Blue Overall	5.75	"	6.00
Fancy	3.00	"	3.25
Washables	2.50	"	2.75
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cutings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.90	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.50	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—

*OPA Maximum Prices.

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	3.50	"	3.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

Appleton Wires are Good Wires

Appleton Wire Works, Inc., Appleton, Wisconsin

FARREL ROLLS

for LONG LIFE

Continuous, sustained production of paper with a uniform finish is a measure of efficient roll performance. The longer the accurate life of rolls, the higher their efficiency.

Farrel rolls achieve their long-lived accuracy through the uniform hardness and depth of their chilled surfaces which are ground to extremely fine limits of accuracy, with correct shape and amount of crown and a superior finish.

Farrel rolls are made in any diameter from 4" to 72" and any face length up to 312", of chilled iron or extra hard "Farreloy" and Farrel Ni-Hard.

FARREL-BIRMINGHAM COMPANY, INC.
50 State St., Ansonia, Conn.

More than just a TRADE MARK

EXCELSIOR KNOX Woolen Co. Camden, Me. FELTS & JACKETS

BUT also a guarantee by men who for 78 years have prided themselves in making finer felts. TO YOU —this is the mark of dependability, longer felt life and greater saving.

KNOX WOOLEN CO.
CAMDEN, MAINE.

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.08	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.00	@	4.25
Wool Tares, light....	4.25	"	4.50
Wool Tares heavy..	4.50	"	4.75
Bright Bagging.....	3.50	"	3.75
Manila Rope			
Foreign	6.50	"	6.75
Domestic	6.50	"	6.75
Jute Threads.....	4.00	"	4.25
Sisal Strings.....	2.75	"	3.00
Mixed Strings.....	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Envelope Cuts....	3.12½	"	—
No. 1 Hard White Shavings, unruled.	2.87½	"	—
No. 1 Hard White Shavings, ruled...	2.50	"	—
Soft White Shavings, one cut.....	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings..	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines.....	1.57	"	—
Mixed Books.....	1.07½	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut..	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas.....	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft.	2.50	"	—
New 100% Kraft Corrugated Cuttings..	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Old Kraft Corrugated Containers	1.35	"	—
Jute Corrugated Cuttings	.90	"	—
Old Corrugated Containers	.82½	"	—
Box Board Cuttings.	.72½	"	—
White Blank News.	1.65	"	—
Overissue News.....	.85	"	—
No. 1 Baled News..	.75	"	—
No. 1 Mixed Paper.	.70	"	—

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp.....	.21	"	—
Fine Polished—			
Fine India.....	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers.....	.17	"	—
Tube Rope.....	.19	"	—
Wall Paper.....	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope....	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java.....	.18	"	—
Mex. Sisal.....	.16	"	—
Manila	.26	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼	@	.07½
New White No. 2.	.04½	"	.05
Light Silesias.....	.04½	"	.04¾
Silesias, No. 1....	.04	"	.04¼
Black Silesias, soft	.03¾	"	.04
New Unbleached..	.07¼	"	.07½
Washable Prints...	.03¾	"	.03½
Washable No. 1..	.02	"	.02¼
Blue Overall.....	.04½	"	.05½
Cottons—According to grades—			
Washable shredding	—	"	.01¾
Fancy Percales....	.03¼	"	.03½
New Black Soft...	.02¾	"	.03
New Dark Seconds	1.75	"	2.00
Khaki Cuttings—			
No. 1 O. D.....	.03	"	.03¼
No. 2 Mixed.....	.02¼	"	.02½
Corduroy	.01¾	"	.02¼
New Canvas.....	.04¾	"	.05¼
New Black Mixed.	—	"	.02½

Domestic Rags (Old)

White No. 1—Repacked	3.80	"	—
White No. 2—Repacked	2.90	"	—
Miscellaneous No. 1.	3.20	"	—
Miscellaneous No. 2.	2.65	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1.....	Nominal		
Domestic No. 1...	1.55	"	—
Domestic No. 2...	1.45	"	—
Roofing Bagging..	1.35	"	—

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
Manila Rope.....	5.00	"	5.50
Sisal Rope.....	3.75	"	—
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	3.25	"	3.50
No. 2.....	1.75	"	1.80
Wool Tares, heavy...	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled.	2.87½	"	—
Soft White Shavings, one cut.....	2.87½	"	—
White Blank News..	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger.	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines.....	1.57	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper.	.70	"	—
Box Board Cuttings.	.72½	"	—
Jute Corrugated Cuttings	.90	"	—
Overissue News.....	.85	"	—
No. 1 Baled News...	.75	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled.	2.87½	"	—
No. 1 Hard White Shavings, ruled...	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut.....	2.87½	"	—
Hard White Envelope Cuts, one cut....	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft.	2.50	"	—
Mixed Kraft Env. & Bag Cuttings.....	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines.....	1.57	"	—
New Manila Envelope Cuts, one cut.....	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White Blank News..	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper.	.70	"	—
Overissue News.....	.85	"	—
Box Board Cuttings.	.72½	"	—
Old Kraft Corrugated Containers	1.35	"	—
Old Corrugated Containers	.82½	"	—
Jute Corrugated Cuttings	.90	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	4.00	@	4.25
Sisal Rope.....	4.00	"	4.25
Mixed Rope.....	1.00	"	1.25
Transmission Rope—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
Soft Jute Rope.....	5.25	"	5.50
Manila Rope—			
Foreign .....(nominal)			
Domestic	6.75	"	7.00
Jute Carpet Threads.	3.25	"	3.50
Bleachery Burlap....	7.00	"	7.75
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.00	"	4.25
Scrap Sisal.....	3.25	"	3.75
Scrap Sisal for Shredding	4.00	"	4.25
Wool Tares—			
Foreign	(nominal)		
Domestic	4.00	"	4.25
Aust. Wool Pouches.	5.25	"	5.50
New Burlap Cuttings	4.00	"	4.50
Heavy Baling Bagging	4.75	"	5.25
Paper Mill Bagging..	2.75	"	3.00
No. 2 Bagging.....	1.35	"	—

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	.04½	@	.04¾
Fancy Percales....	.04¾	"	.05
New White No. 1.	.07¾	"	.08
New Light Flannelettes	.06	"	.06¼
Canton Flannel, Bleached	.08	"	.08¼
Underwear Cutters, Bleached	.08	"	.08¼
Silesias No. 1.....	.04½	"	.05
New Black Silesias..	.03½	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached....	.08¾	"	.08½
Blue Cheviots....	.04¾	"	.05
Fancy	.02¾	"	—
Washable	.01¾	"	—
Cottons—According to Grades -			
Blue Overalls.....	—	"	.05½
New Black, Soft..	.03¾	"	.04
Khaki Cuttings.....	.02¼	"	.02¾
O. D. Khaki.....	.02¼	"	.03¼
Corduroy	.02	"	.09¼
New Canvas.....	.06	"	.06½
B. V. D. Cuttings...	.07¾	"	.09

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls...	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.55	"	—*
No. 2.....	1.45	"	—*
No. 3.....	1.35	"	—*
No. 4.....	1.35	"	—*
No. 5, Quality A..	1.35	"	—*
Quality B..	1.20	"	—*
Quality C..	.95	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas .....(nominal)	
Dark Cottons.....(nominal)	
Dutch Blues.....(nominal)	
New Checks and Blues(nominal)	
Old Fustians.....(nominal)	
Old Linsey Garments.(nominal)	
New Silesias.....(nominal)	

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled.	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines.....	1.57	"	—
White Blank News..	1.65	"	—
Mixed Kraft Env. & Bag Cuttings..	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News.....	.85	"	—
No. 1 Baled News..	.75	"	—
No. 1 Mixed Paper..	.70	"	—
No. 1 Roofing Rags..	1.50	"	—
No. 2 Roofing Rags..	1.45	"	—

Gets Patent on Delignification

Dr. Henry Dreyfus, Celanese Corporation of America, Inc., New York, N. Y., has been granted a patent (No. 2,267,087) relating to the delignification of wood or similar materials. According to the invention, the wood or other ligno-cellulosic material is heated under pressure, with a relatively dilute solution of caustic soda or other alkali, until a major portion of the lignin has gone into the solution. Following, the concentration of the alkali solution is increased, preferably by the evaporation of water, and the cellulosic material then further heated with the concentrated alkali solution so produced. The process yields a cellulose highly suitable for conversion into cellulose derivatives.